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Vol. LXI DECEMBER
No. 12 1946

The American City

Issued Monthly by the
American City Magazine Corporation
470 Fourth Ave., New York 16, N. Y.

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Subscription, $3 per annum to any part of the world
Single copies, 50c
Entered as second-class matter, July 20, 1910, at the Post Office at New York, N. Y., under Act of March 3, 1879. Printed in U. S. A.

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THE MUNICIPAL INDEX AND ATLAS, used in connection with the current advertisements in THE AMERICAN CITY, places local officials in the most favorable position to obtain all types of available equipment and supplies from manufacturers who desire to serve municipal government departments. THE MUNICIPAL INDEX AND ATLAS (751 pages) is published annually by AMERICAN CITY MAGAZINE CORPORATION, 470 Fourth Avenue, New York 16, N. Y.

See pp. 19, 20, 21, 22, 24, 28, 139, 141, 143 for catalogs and publications on municipal and civic subjects

List of coming conventions on page 137. For Index to Advertisements see page 178.

A LOT OF TELEPHONE SERVICE FOR A LOT OF PEOPLE

WE'VE added about 3,000,000 new telephones so far this year — more than twice as many as ever before.

That's one reason why local telephone calls are up 25,000,000 *a day* over last year. Long Distance calls have more than doubled since before the war.

We're doing some fast stepping to meet your needs, in spite of shortages of materials.

Best of all, service has remained good on most calls, despite the large increase in the use of the telephone. There are some delays, but we'll be taking care of all of them just as soon as additional equipment can be made and installed.

BELL TELEPHONE SYSTEM

Some November Election Results

Upsurge in Local Government Interest

IN THE opinion of Alfred Willoughby, executive secretary of the National Municipal League, the November election results are part of a trend toward municipal improvement that is represented by an utterly unprecedented ferment in local government. This was especially evident in the number of cities voting charter changes and adoption of the manager plan.

Madison, Wis., has been arbitrarily designated as the 700th city to vote in the city manager form of government, although the following municipalities were also among those to adopt similar charter changes at the November 5 election: Ypsilanti, Mich., Osborn, Ohio, Emporia and Hutchinson, Kans., Santa Monica, Calif., Waxahuachie, Tex., Nicholasville, Ky., Rosebury, Springfield, and Pendelton, Ore. Previously, Grand Forks, N. D., Enid, Okla., Glenwood Springs, Colo., Wayzata, Minn., and Fox Point, Wis., had adopted the plan in October.

Thus far this year, more than seventy-five municipalities have voted charter revisions and adoption of city manager government. The nearest approach to that record was in 1921, when forty-eight municipalities voted for the manager plan.

Other Election Highlights

The voters of *Toledo, Ohio,* were called upon to reaffirm their faith in proportional representation and the city manager plan for the fourth time since the present city charter went into effect in 1936. This they did, defeating an amendment at the recent election providing for a mayor with strong executive powers and a twenty-one-member council.

Richmond, Va., voters overwhelmingly decided to set up a commission to study the city's charter, which prescribes a bi-cameral legislative body, and to make recommendations for change. Strong leads were given to the seven candidates of the Richmond Citizens' Association for this commission, and it is expected that sentiment will be for the city manager plan.

Baltimore, Md., adopted an improved charter which, however, retains the mayor-council government. In *Chattanooga, Tenn.,* a proposed new charter lost out by 612 votes.

Elections Boost Manager Plan

More than seven hundred municipalities now have city manager government as a result of the charter changes voted at the November 5 elections. A similar upsurge of interest in local government occurred after World War I, in 1921, but now the desire to improve municipal administration is making itself felt more promptly and vigorously. If the revitalized trend continues, it seems possible that manager government will be predominant among the nation's communities within the next ten years.

Montgomery County, Md., voted for a charter commission to restudy the charter that was submitted and defeated several years ago. *San Francisco's* charter amendment, which was carried with a very large majority, retires city employes at sixty-five years of age with increased pensions.

Organized politics in *Chicago* received a blow as a result of the 1,250,000 to 220,000 vote to adopt automatic voting machines for future elections.

One of several cartoons used in the successful campaign by Michigan officials for a constitutional amendment to return a portion of the Michigan sales tax to the school districts and cities, villages, and townships. The result was that the amendment received a majority of over 200,000, and it is estimated that $53,000,000 of additional revenues will now go annually to Michigan schools and local governments.

Hoboken, N. J., voters also delivered a defeat to the political machine in that city by voting for civil service, 8,499 to 5,014.

A number of bond issues for municipal improvements were voted down throughout the country, including the initial issue of $600,000 to launch the much-publicized *Rye, N. Y.,* development program reported in THE AMERICAN CITY for October. Another city in which important proposed bond issues lost out was *St. Paul, Minn.*

Voters of *Omaha, Nebr.,* however, approved eight major civic improvement projects, which will cost an estimated $10,233,700. Eight other projects, totaling an estimated $4,813,700, were turned down by the voters.

Returns from *New Orleans* indicated overwhelming approval for the sale of the New Basin Canal to the city and the Highway Commission. This clears the way for a $31,000,000 union station and grade separation program. The reform administration under Mayor DeLesseps S. Morrison secured the voters' assent for all of the amendments which it favored, including a $25,000,000 road bond issue. The heaviest vote for any of the constitutional amendments, 52,571 to 9,502, was recorded in favor of No. 30, which gave Jefferson Parish the authority to create zoning districts.

Kansas City, Mo., has annexed Clay County as an election result. In *Minneapolis* an amendment was narrowly defeated which would have enabled the city to engage in public housing and slum clearance. *Michigan* municipalities and school districts will now get back one cent of the state sales tax, a half cent to each, but the new reform state administration faces some headaches because a $270,000,000 veterans' bonus was also passed by the voters, with no visible source of funds available.

Washington, D. C., Wants Vote

Residents of the nation's capital, who haven't been able to vote since 1873, made it known that they, too, want to participate in running their local government. Since 1874, three commissioners, chosen by the President, have been responsible for the

(Continued on page 113)

Inside facts about a sealed electric motor

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SUBMERSIBLE PUMP

A close-coupled motor-pump unit that operates *entirely submerged in water* at *any* well-depth. The *only* basic improvement in deep-well pump design...since BJ introduced the deep-well turbine in 1901.

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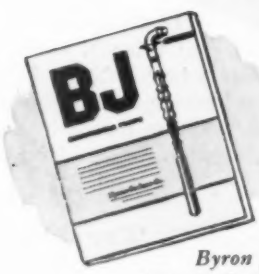
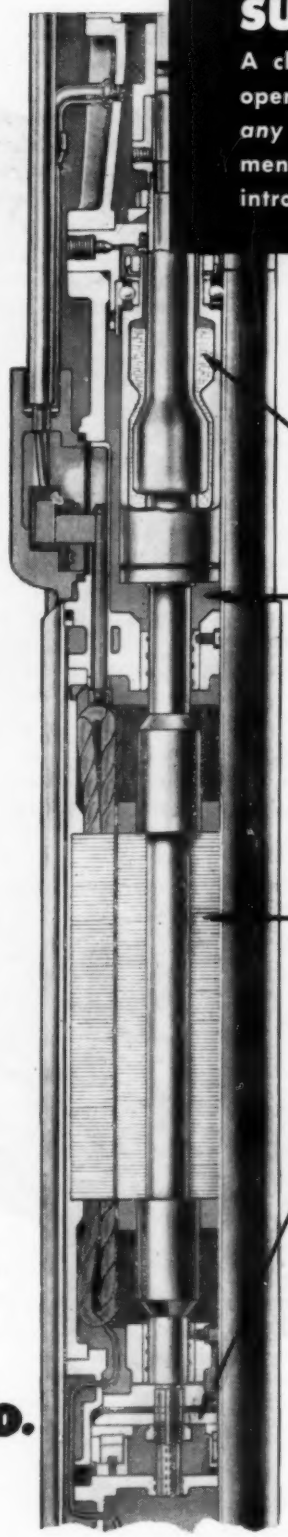


Get this new Submersible Bulletin. Write Byron Jackson Co., P. O. Box 2017, Teminal Annex, Los Angeles 54, Calif.



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LUBRICATING OIL
of high dielectric strength fills motor case, prevents water from contacting motor. The oil is also a cooling agent, circulating continuously to carry heat from windings to the water-cooled outer shell.

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of relatively small diameter means low moment of inertia and quick acceleration. Ideally adapted for Full Voltage starting.

ONE THRUST BEARING
carries entire thrust load of pump and motor.

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Offices in Principal Cities

Our Municipal Notebook

Helping Veterans Readjust

IN RECENT months many city department heads have found that a number of the returning veterans, physically as well as mentally changed by the war, have difficulty in resuming their former jobs. That these men can be helped through the reorientation period and brought back into the department is proved by the experience of New York City's Department of Sanitation.

When former employes of the New York City Department of Sanitation came home from the service, many resigned because of salary conditions or inability to readjust to old jobs. Sensing the restlessness, Harry R. Langdon, Administrator of the Department and Chief of the Bureau of Finance and Supply, applied Army and Navy training and tried to assign the returning veterans to jobs as closely related to their service training as possible.

A former engineer and ordnance man in the Army was given the job of securing Army surplus materials needed by the department, while a former signal corps man was assigned to make a complete communication survey of the various types of equipment used throughout the department. A former regimental supply sergeant was assigned to the division of supplies, and a former motor pool man was placed in charge of a gasoline survey and a survey of the type of equipment in use.

Before the veterans were wholly adjusted to civilian work, many of them were notified that they would have to take promotion examinations. The prospect was discouraging, for they had had no opportunity to familiarize themselves with new methods or to review the old thoroughly. In order that the men might be prepared for the examinations, Commissioner of Sanitation William J. Powell and Mr. Langdon organized in-service training courses, and officials of the department conducted the courses so that every phase of the department activities and functions was discussed clearly and intelligently.

"In no case," Mr. Langdon said, "did a veteran take advantage of or misuse the opportunities given him. Through their efforts they were able to discover and supply tools to our fifty-six garages, which will put the snow equipment in condition for emergencies."

A Reflexite street sign at New Canaan. Note old "Woodland Road" sign above.

The new street sign at night. New Canaan has replaced its old signs with Reflexite.

New Street Signs Easily Read at Night

RECENTLY installed street signs at New Canaan, Conn., are made of a reflecting material as easily read by night as by day, First Selectman Clarence E. Costales writes. The clarity and readability of the new signs and the satisfactory results of the test installation on Woodland Road have led the town to replace its old street name signs with the new material.

New Canaan's signs are of Reflexite, a special application of Lucite developed during the war and now produced by Reflexite Corporation, Norwalk, Conn. It consists of a thin piece of Lucite on the surface of which has been molded tiny spherical lenses. By applying selected inks to the back surface of the plastic, individual letters are formed and, when assembled in a metallic holder through use of a permanent adhesive, produce a reflecting sign, as shown in the unretouched photographs. The resistance of Lucite and resin ink insures long life.

"Before purchasing for the entire community," Selectman Costales says, "we installed many of these signs to get public reaction. Favorable reply was immediate, particularly on one point—at night the intersecting street signs are plainly visible, a safety advantage for both motorists and pedestrians."

Waste Receptacles for Streets and Parks

CITY officials appear to be picking up where they left off just before the war, in a search for good wire refuse baskets and utility waste receptacles. Inquiries have come from New Jersey, Michigan, and Texas, and probably many other municipalities will be glad to have the names of reliable makers of wire refuse baskets and utility waste receptacles. A list will be sent to any municipal official requesting it from THE AMERICAN CITY, 470 Fourth Avenue, New York 16, N. Y.

A Chicago-style basket made by the Cyclone Fence Division, Waukegan, Ill. It is 30 inches high, with a 23⅓-inch top diameter and a 19¼-inch bottom diameter. The New York style is 34 by 22½ by 17¾ inches.

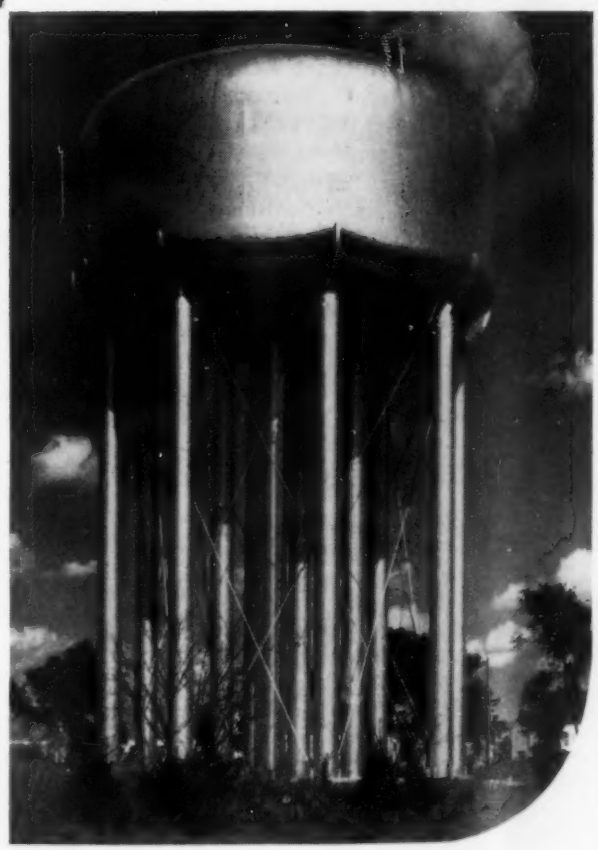
WHAT ABOUT THE PRESENT AND FUTURE OF *YOUR* CITY'S WATER SUPPLY?

★ The installation of large capacity water storage tanks like the ones shown on this page is often one of the first steps taken to improve present day water pressures and to prepare for *good* water service for years to come. There are many benefits to be derived from elevated storage. Studies of actual "before and after" pressure charts have proven many times that elevated water storage can be the determining factor in *smoothing out* pressure fluctuations in water distribution mains. Adequate elevated storage also provides a city with a ready reserve of water for fire protection. Furthermore, this type of storage often results in a reduction in pumping costs as well as provides a reserve of water available in case of power failure.

Two Tanks at Richmond

The Department of Public Utilities at Richmond, Virginia has installed the two 1,000,000-gal. Horton elevated tanks shown here to provide for the present and future water requirements of that city. The tank at the top of the page is 97 ft. to bottom and has a range in head of 25 ft. The one at the right is 77 ft. 6 in. to bottom and has a range in head of 35 ft.

Horton elevated tanks are built to serve a municipality for years. They are of all-welded construction. The cylindrical columns are grit blasted, sand blasted or pickled by a phosphoric process to assure a better paint job. Horton elevated tanks are designed for pleasing appearance as well as for utility value and long life. Write our nearest office for quotations on Horton elevated tanks to meet your particular requirements.



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Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PENNSYLVANIA

Water Supply and Treatment

Dubuque Eyes Improvement Program

WHEN equipment, material, and labor are available J. J. Hail, superintendent of the Dubuque, Iowa, water department, has a five-point program that he plans to set into motion. This includes the following:

1. Construct an 8-mgd water softening plant at an estimated cost of $300,000.
2. Construct one 1-mg and one 1½-mg elevated storage reservoir at a total estimated cost of $107,500.
3. Lay one 24-inch and one 12-inch feeder main at an estimated cost of $37,500.
4. Construct a new warehouse and repair shop costing an estimated $25,000.
5. Install a high-lift pumping station to pump directly from low to high service at an estimated cost of $2,500.

Dubuque's water department has no outstanding bonded indebtedness. The general fund surplus for the past year is being invested in short-term government bonds as a reserve for improvements to be made at such a time as material becomes available. The department operates without the benefit of hydrant rental and furnishes free to the city all water used by the street, sewer, park, recreation, and fire departments, including the swimming pool and all city buildings. The funds of the department meet 25% of the salaries of the city manager, auditor and treasurer; and last year the city transferred $15,000 from the water department general fund to the city's bonded debt fund, making a total of $115,000 so transferred during the past six years.

New Orleans to Build New Trunk Feeder

A NEW trunk line main going from the purification plant to the opposite end of the city is on the construction schedule of the Sewerage and Water Board of New Orleans, La. General Superintendent A. Baldwin Wood is drawing plans for a main that will consist of the following:

14,350 feet of 48-inch pipe
9,400 feet of 42-inch pipe
11,650 feet of 36-inch pipe
6,100 feet of 30-inch pipe
4,650 feet of 24-inch pipe

All pipe except the 24-inch will be of either cast iron or protected steel. In the 24-inch size, only bids on cast iron will be accepted.

The installation of the water main will be in city streets and will be completed within twelve months after delivery of the pipe.

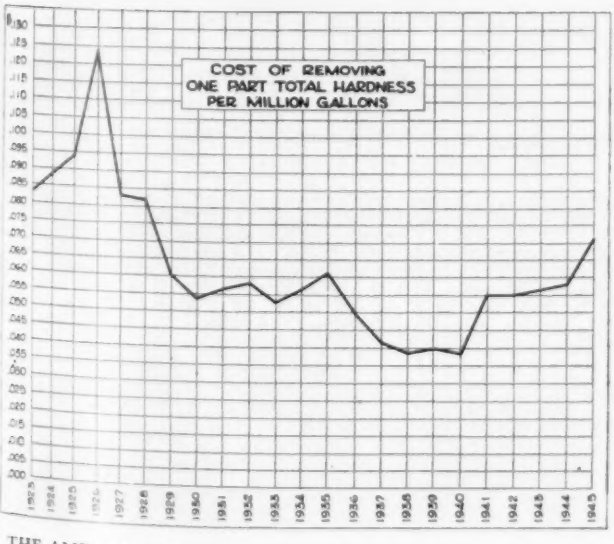
Guayaquil, Ecuador, Modernizes Water Supply

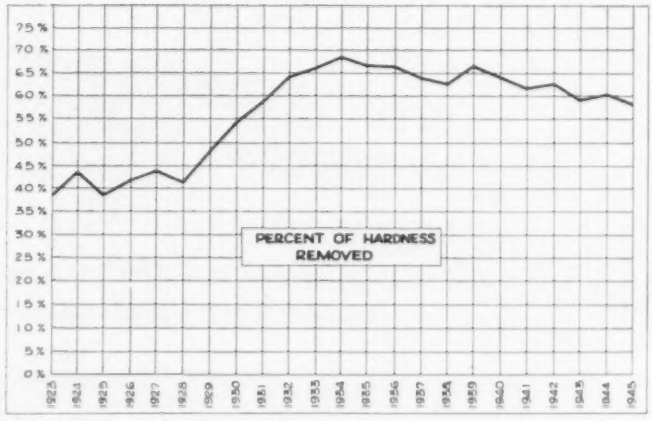
GUAYAQUIL, ECUADOR, is setting its sights for an improved water supply. Buck, Seifert and Jost, Consulting Engineers of New York, are making a study of water supply requirements and proposed sources of supply. After completion of their report they will prepare construction plans and specifications and supervise construction. The Fredrick Snare Corp. of New York will construct the water works system. Operation after completion will be supervised for one year by the Pitometer Co., also of New York. The Pitometer Co. is also cooperating in the design.

Present plans indicate that the new system will consist of intake works on the Daule River, about 30 kilometers north of the city, and an aqueduct leading to the city, together with large sedimentation basins partially to clarify the water. There will also be a diesel-electric pumping station, filtration plant, distribution reservoirs, and transmission and distribution system improvements. The cost of the work is estimated at $4,000,000.

The present water supply furnishes service during only a limited number of hours during the day. Early this year the supply suffered a break in the main passing under the Guayno River.

Topeka's Water Softening Cost



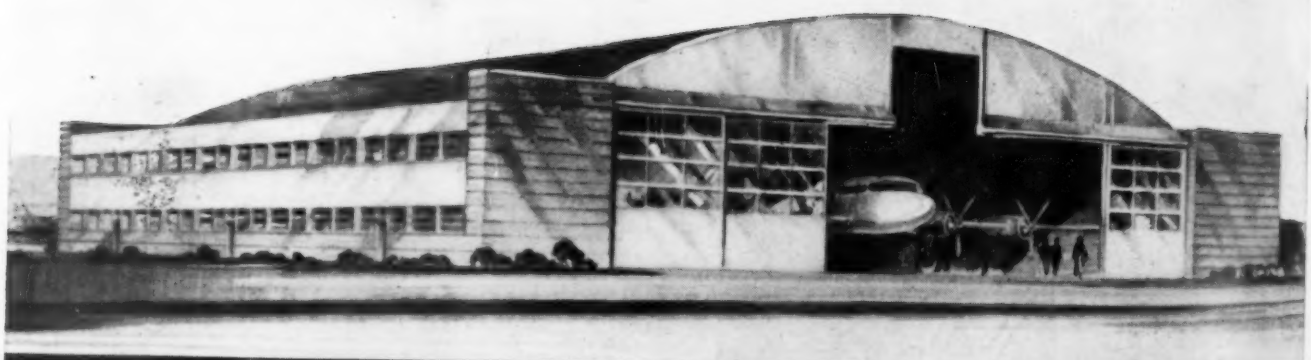


These graphs show how water softening costs have varied in Topeka, Kans. The water varies in total hardness from 250 to 320 ppm in the raw state, and from 80 to 150 ppm when treated. Commissioner of Water Lloyd B. Smith in his annual report has figures showing that an average family of five will save $9.00 per year in soap alone through water softening—or an amount almost equal to the family's water bill.

Water supply costs during the past fifteen years have varied between $60 and $75 per million gallons. Pumping costs have made up $25 to $30 of this; treating operations, the remainder.

HANGAR

by LURIA



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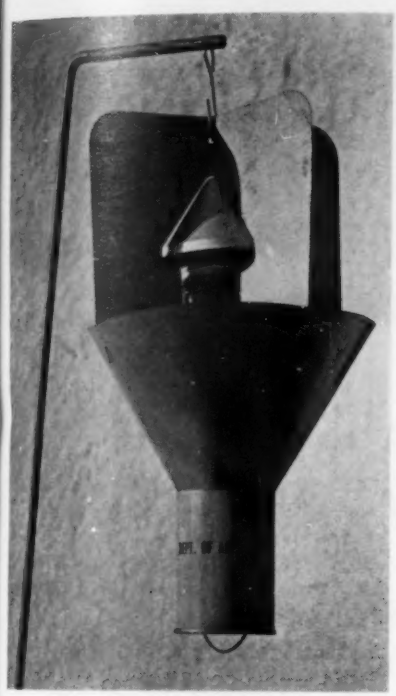
Aviation and Airports

Oakland Airport Tries Trapping Beetles



A Japanese beetle trap used by Oakland.

AN experiment which may be of interest to airport officials was conducted at Oakland Airport in California this year. Special Japanese beetle traps were placed and maintained at the field by both the state and federal departments of agriculture to determine whether any of the insects crossed the ocean or the continent in airplanes.

Feared Beetles Would Get Foothold

None of the crop-devastating beetles were captured in the area during their annual flight season from June 15 to October 15, and the traps have now been withdrawn. It was feared by the Federal Bureau of Plant Entomology and Quarantine that, if Japanese beetles once gained a foothold on the West Coast, it would be difficult to extirpate them. Thus far, they are to be found in this country mainly along the Atlantic seaboard, where they were introduced direct from Japan about 1912.

The traps, baited with an oil made from geraniums, were guaranteed to attract any of the insects if they made their appearance. They were hung by slender rods in the shrubbery about the airport, and did capture many types of native insects, including moths and honey bees, but not a single Japanese beetle.

Airports Out of the Red?

Damned on all sides—by the traveling public for not providing more complete air facilities in a more convenient location, and by the taxpayer for having to foot the bill for a service that he feels should stand on its own feet—the average airport official looks suspiciously on management changes that may only irritate his present harried condition.

Nevertheless, Frank Sohn's analysis of how an airport can boost its income should prove helpful (see pages 74 and 75 of this issue.) Airports should be a part of the community, not a distinct, separate and aloof business.

Basic Elements of an Airport

THERE ARE THREE basic elements to every airport, A. E. Dyatt explained recently before the American Public Works Congress at Fort Worth. Mr. Dyatt is Chief Engineer, Airports Branch of the regional office of CAA at Fort Worth. The elements are: building area, landing area, and air space.

The building area is the public's first contact with the airport, and a well-managed airport will develop its revenue possibilities to the fullest extent. These include facilities for the comfort and pleasure of a relatively isolated community, including stores, cafes, theatres, and garages.

Landing areas require designs for stronger runways. A plane weighing 130,000 lbs. is entirely conceivable, and others weighing 73,000 to 96,000 lbs. are now operating.

Most larger craft can operate safely in crosswinds of 30 miles per hour, and a single runway will care for most of this type of business. Small airplanes are limited by crosswinds of much lower velocity, however, and facilities for them must be designed accordingly. Furthermore, the average private pilot of the immediate future probably will be less experienced than today's, and landing areas must be designed with due regard to this pilot limitation.

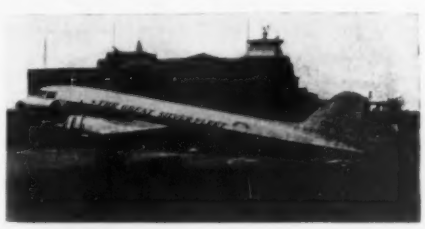
Air space analysis discloses no such thing as an isolated airport or an isolated solution to the airport problem. Generally the class of an airport is equivalent to the operating radius in miles around it. Separation by 14 miles is desirable where simultaneous operation of airports with instrument control of landings is contemplated.

Early Filing of Requests Urged for Airport Projects

IMMEDIATE FILING of project requests with the District Airport Engineers of the Civil Aeronautics Administration by municipalities who desire federal aid under the Federal Airport Act was urged recently by Charles B. Donaldson, Assistant Administrator for Airports.

Mr. Donaldson stated that in order for applying agencies to get on the priority list for construction, which will start about April 1, 1947, project requests must be made as soon as possible. He further admonished that long delays in the submission of project requests may mean that construction of badly needed airports will be put off until some later date in the seven-year program.

LaGuardia Field Needs Repairs



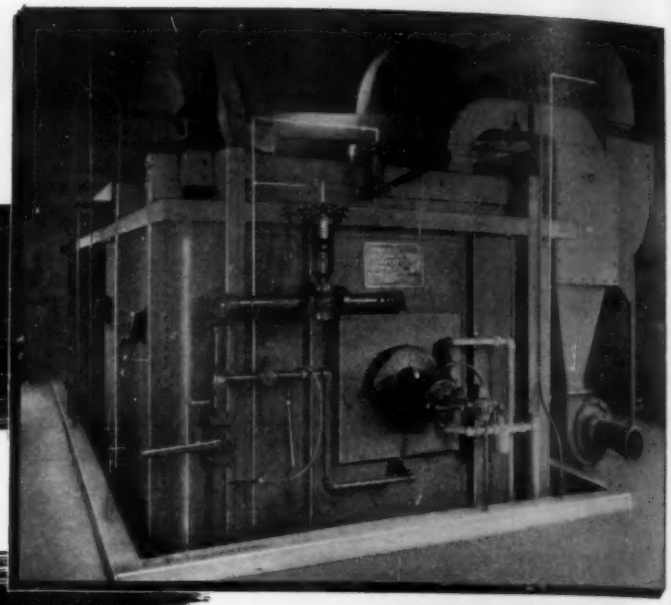
LaGuardia Field, New York's major airport, will have to be closed for repairs within the next two years. The field, which has been in operation for the last six years, is sinking 6 inches a year and is under water at high tide at one end.

FERTILIZER PRODUCTION

from

❶ Digested Sludge

❷ Excess Activated Sludge



Front view of furnace of C-E Raymond System installed at Sheboygan, Wis. Capacity 3,040 pounds of water evaporated per hour.

with The C-E Raymond System

Necessity for maximum food production and the resultant demand for fertilizers makes the C-E Raymond System a doubly sound investment for municipalities with sludge disposal problems.

Not only is sewage sludge disposed of cleanly and efficiently with the C-E Raymond System; its end product is a valuable fertilizer or humus for use in municipal parks or for *immediate and profitable sale.*

A glance at the exclusive features at the right will indicate why the C-E Raymond System has been the choice for 18 communities, ranging from 5,000 to 3,500,000 population. These plants are drying or incinerating more than a million tons of sewage sludge filter cake each year.

Inquiries on the C-E Raymond System should be directed to the nearest office of The Dorr Company, world sales representatives in the Sanitary Engineering Field.

EXCLUSIVE FEATURES OF THE C-E RAYMOND SYSTEM

DESIGN

1. Composed of flexible units which can be arranged to suit any building design.
2. Same system can produce either dry sludge for fertilizer or can incinerate to ash.
3. Effective dust elimination. Efficient ash disposal when incinerating. Facilities for storage and bagging of dried fertilizer.
4. Efficient insulation minimizes radiation loss.

OPERATION

1. Can be operated on an 8, 16 or 24 hour a day schedule.
2. Starts from cold in 30 minutes
3. Can be shut down in 15 minutes.
4. No stand-by attention required.
5. Digester gas often sufficient fuel for drying sludge.

ODOR CONTROL

1. Operates at completely deodorizing temperatures (1300° F) or at lower temperatures (1000° F) with high thermal efficiency.

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Sewerage and Sewage Treatment

Oklahoma City Cleans Trunk Line Sewers

TEN MILES of main trunkline sewers are undergoing cleaning in Oklahoma City, Okla., as the first step in a $9,000,000 sanitary project. This is the first cleaning that many of these sewers have experienced. The work is being performed by the Flexible Underground Pipe Cleaning Co., Los Angeles, Calif., and covers chiefly the mains in the business and industrial area of Oklahoma City. The work is being performed to keep the sewers in operation pending a general reconstruction program.

These mains, which are 24 to 84 inches in diameter, consist chiefly of segmental blocks laid in 1902. Since that time many of the joints in the blocks have been eaten away by gases and acids in the sewage. As a result, the sewers in many places show signs of collapsing, and infiltration is very high. In some places the sediment settled in the sewers, filling a 4-foot pipe to a depth of about 3 feet. Some manholes were filled with scum almost to the brim. Very often, during heavy storms, sewage jetted out of the manholes like a small geyser.

These difficulties, caused chiefly by Oklahoma City's great population rise since 1910, are being corrected in a new program of which sewer cleaning is only one of the steps. The work contemplated includes rebuilding these mains, replacing them with new pipe cast in sections, the longest of which is 12 feet, and laid to a grade that will provide a minimum flow of two feet per second. Construction of two new sewage treatment plants is planned. One will provide biofiltration for the secondary treatment phase and will handle the bulk of the sewage from the city's packing houses and oil fields. The second will be designed to furnish activated sludge treatment and will receive chiefly residential sewage. Both plants will have sludge digesters with gas production, the gas to be utilized in internal combustion engines for power. The digesters will be kept at optimum temperature by heat exchangers.

During the war careful estimates were made to judge the city's post-war population. All of these indicated that Oklahoma City would lose approximately 10% of its wartime population. This has not proved to be the case. The population and demand rose and has continued to rise.

Webster Benham, Benham Engineering Co., and Stoner McLelland, construction engineer for Oklahoma City, inspect operations involving a city bucket cleaner.

A Flexible cable-operated cleaning unit at work on one of Oklahoma's City's sewers.

The present sewerage program is being designed by the Benham Engineering Co., Oklahoma City, in consultation with Alvord, Burdick, and Howson, Chicago. The work is under the direction of Stoner McLelland, construction engineer for Oklahoma City.

Don't "Mass Produce" Treatment Plants

THE TYPE of sewage treatment plant to fit a city's needs should be thought of in general terms. This caution was voiced by Louis R. Howson, consulting engineer of the firm of Alvord, Burdick and Howson, Chicago, during a round-table discussion of the trickling filter process, held during the recent meeting of the Federation of Sewage Works Associations in Toronto.

There is no such thing as a "type" of plant that in itself will meet the needs of any city. To meet each locality's requirements, each plant should be "tailor-made." Only broad generalizations may be made about the trickling filter: it can care for a load that is heavy, that is variable even though the season is a characteristic one, and even variable from hour to hour. The trickling filter has proved to be a rugged method of treatment that rarely, if ever, fails. If the incoming sewage appears excessively difficult to handle or the treatment requires extremely thorough and consistent removals, the plant can be reinforced by a roughing filter that can handle extremely high loadings and effect good removals.

Filters in series can produce any degree of treatment required. One plant treating a 1,500-ppm BOD packing-plant waste on three-stage filter delivers an effluent of less than 15 ppm BOD.

However, the fitting of these characteristics to a specific place should be on the basis of an engineering study that determines the problems that the locality must face.

A trickling filter, Mr. Howson said, will take any load, no matter how much, or how suddenly applied, and do something with it. The degree of treatment, instead of being 85% BOD removal, may be reduced to as low as 50%; but the waste will go through and the plant will not be completely upset in the process.

For an illustration, the ordinary trickling filter load is about 400 to 600 pounds BOD per acre-foot per day. With removals of 85% to 95% secured, the actual quantity removed would average 540 pounds per acre-foot per day. A roughing filter treating a packing-house waste can be loaded as high as 10,000 pounds per acre-foot per day, and on this loading it will remove 50% of the BOD, or 5,000 pounds per acre-foot per day. Thus, although its efficiency is drastically reduced, the pounds of BOD removed per acre-foot is ten times as great.

Sugars Down the Sewer?

ONLY a small fraction of the sugar available from trade wastes are being reclaimed. This was a point brought out by H. C. Joseph, Superintendent of the Alcohol Plant, Ontario Paper Co., Thorold, Ont., at the Sewerage Works Associations' meeting in Toronto.

Canadian mills throw away 250,000 tons of sugar or enough to produce twenty-eight million gallons of industrial alcohol. U. S. mills waste enough sugar to produce thirty million gallons.

A MERRY Christmas

AND AN EVEN BETTER TRAFFIC REGULATED New Year

TO ALL CITY OFFICIALS EVERYWHERE...AND TO THE MERCHANTS AND TOWNS-PEOPLE OF THE 400 CITIES ENJOYING THE PROVEN 10-YEAR DEPENDABILITY OF MILLER METERS.....

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Street Construction and Maintenance

Evaluating Concrete Dissection Method

PERIODICALLY concrete men play with the idea of controlling concrete operations by testing a sample as it emerges from the mixer. Most of the work has been by washing to determine fine and coarse aggregate. But when W. H. Droege, materials chemist at Fort Wayne, Ind., took this method a step further and decided to use the same method for the determination of the cement content, water content, and estimated strength, he goes beyond the point that most investigators have traveled. (See page 109 of this issue.)

Many have expressed dissatisfaction over the fact that after the material enters the mixer there is no way of testing except by checking strength a week after the concrete is poured. Neither have they liked the fact that they have no check at all on proportions. Mr. Droege's contribution is valuable because it fills this need and also because it focuses attention on the general subject of concrete testing.

Points to Be Clarified

Nevertheless, here are a few points about its use that might require watching, and that possibly further experimentation by Fort Wayne may clarify:

1. The test covering the water content must be subject to inaccuracies because a certain amount would be lost in cement hydration. Corrections could be applied for these, however.

2. One might get into trouble by assuming that everything passing the 200-mesh sieve is cement. For example, there are certain localities where the natural soil will pass this sieve easily, and unfortunately there are some contractors who are not above tossing a few shovelsful of this soil into the mixer when the inspector's back is turned.

3. The size of the sample is somewhat small. The American Society of Testing Materials recommends a sample weighing 15,000 grams for mechanical analysis where the particle size is 1½ inch.

4. Many concrete men would question whether or not the soundness of the aggregate can be determined more accurately from the reclaimed sample than from the examination of individual samples.

There is no question of the effect it would have on a contractor when he realized that someone was checking not only the strength of the concrete when cured, but also the proportions when being mixed. Good inspection may look expensive but it actually is the most economical factor in concrete construction.

Kalamazoo's Sidewalk Ramps

Those who have difficulty manipulating curbs get a break in Kalamazoo through these small convenient sidewalk ramps.

KALAMAZOO gives the physically handicapped a break by providing ramps on the sidewalk at certain intersections, thus making the step off the curb easier. The ramps were constructed off the direct line of crosswalks as far as was possible and are of a slope and width to accommodate the comfortable passage of one person. There was no attempt to place ramps in both directions at each of the four corners of the intersections; rather, the location of the ramps was selected to provide passage to and from points of interest and occupation in the business area.

The ramps were designed by H. L. Andrus, director, Department of Public Works, Kalamazoo, Mich.

Plan Commission Recommends Philadelphia Freeway

A REPORT, just submitted to the Philadelphia City Council by Mayor Bernard Samuel, of recommendations made by the Philadelphia City Planning Commission for a six-year public improvement program embodies important expressway recommendations.

The expressway recommendations aim at a system that will accommodate all main streams of traffic in and out of the center, around the city, and through it, on express highways. These express highways would be separated from cross-traffic by elevated or depressed construction or by limited access to designed intersections. A major feature of the scheduled program is a series of links which will form an industrial highway from southwest Philadelphia. This highway will slant across Philadelphia and thence up the Delaware River to Aramingo Ave.

The plans also recommend the construction of Pennsylvania Boulevard as a wide central artery and the partial demolition of the elevated railway, replacing it with an extension of the subway system. The planning commission points out that this program will provide for extensive redevelopment of the central portion of the city and stimulate commercial and apartment construction.

Another major expressway link in the scheduled program is a drive along the west bank of the Schuylkill River and Vine Street from the west bank of the Schuylkill to the industrial highway on the Delaware River.

Roadbuilders Plan '47, '48 Meetings

A CONVENTION in 1947 and a road show in 1948 is on the agenda of the American Road Builders' Association. The convention will take place during the week of February 17, 1947, at the Palmer House in Chicago, and will aim at airing the problems that face builders of streets and highways and studying new technical developments in highway and street construction.

More spectacular will be the 1948 Road Show planned for the week of February 16 at Navy Pier, Chicago. By 1948, manufacturers will be showing equipment that will be available for delivery, that will have been proved by on-the-job testing, and that will have incorporated war developments. On Navy Pier, where ample space is available, roadbuilders plan a pageant of mechanical progress in the road and street construction field.

Steel Shortage Emphasizes Need for —

1. Better plant maintenance
2. More care in storing steel
3. More ingenuity in adaptation

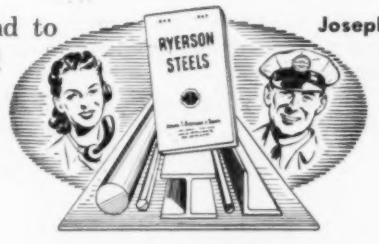
Today's shortage points up as never before the importance of using every available pound of steel to best advantage. It's the responsibility of buyer and seller alike.

Because a machinery breakdown may necessitate replacements not readily available under present conditions, extra maintenance care is essential. Regular painting of exposed surfaces and thorough lubrication of working parts will often prolong the useful life of plant property and equipment considerably.

Industry can cooperate by more careful storage and handling of its steel inventories. Many manufacturers have some steel on hand, but inadequate protection and poor handling facilities may cause deterioration and sometimes the stocks are not in satisfactory condition when needed.

Ingenuity in adapting steel on hand to needs of the moment is a third essential today. Steel buyers can help by specifying cut size on orders for stock lengths, allowing steel-service plants to draw on their inventory of shorts. And the steel warehouse itself can make wide use of adaptation. For example, Ryerson plants continue to carry fair stocks but orders for popular sizes of many products are so numerous that the demand cannot always be met. When this happens, we can often suggest alternate kinds or sizes to do the job. An alloy bar replaces a carbon bar. Two angles form a square tube. In one way or another we may be able to help keep production moving despite the steel shortage.

Our organization is constantly on the watch for ways to make the available steel supply useful to more customers. We promise no miracles, but we will certainly do everything in our power to serve you when you call.



Joseph T. Ryerson & Son, Inc. Steel-Service Plants at: New York, Boston, Philadelphia, Detroit, Cincinnati, Cleveland, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles.

RYERSON STEEL

Public Safety

San Diego "Ghost Car" Helps Save Lives

WHEN pedestrian traffic fatalities reached thirty-five in 1944, the San Diego, Calif., police department launched an education program to prevent citizens from actually walking themselves to death.

Early in the year we introduced our "ghost car," which, equipped with a radio amplifier, cruised the streets in the central business district, the beach areas, and the outlying locations having pedestrian accident records. Officers prompted pedestrian violators with short, courteous warnings.

Results were apparent immediately. Injury accidents dropped from an average of more than forty a month to less than twenty-five, and fatalities decreased. Our pedestrians were beginning to stop and look, but this was not the permanent cure. When accidents rose again, we used two additional ghost cars during peak traffic periods.

We devised for sidewalk use a new pedestrian stencil consisting of the words *Stop* and *Look* with an inverted S-shaped arrow winding between the words and pointing in both directions. At eye level on all crosswalks in the business district, we placed another pedestrian sign with the wording, "Pedestrians Must Obey Traffic Signals."

Three phases of San Diego's pedestrian education program: (left) courtesy warnings; (upper right) "ghost car" to warn violators; and (lower right) new sidewalk stencil.

We then inaugurated the issuance of warning citations in the form of small booklets describing pedestrian violations by a short message and cartoons. Thousands of these courtesy warnings were issued by our officers. In addition, holders containing the citations were affixed to posters, reading "Have a Traffic Ticket Free," and placed on counters in all business establishments in the city. The fine for pedestrian violations was raised from $1 to $5.

This work, combined with newspaper publicity and radio support, prepared the public for actual enforcement. We feel that our long-range pedestrian program is successfully launched.

CLIFFORD E. PETERSON
Chief of Police
San Diego, Calif.

PHOTO BY NASSAU DAILY REVIEW-STAR

Nassau County's Walter motor truck escorted by a fire engine and officers on Indian motorcycles. The police department has twenty; eight are equipped with two-way radio.

Getting Chlorine Through

WHEN the recent trucking strike deprived Nassau County, N. Y., water works and sewage plants of regular shipments of chlorine gas for purification, a public works department truck, escorted by fire trucks and county police, delivered 38 vital chlorine cylinders from the Brooklyn warehouse of The Mathieson Alkali Works.

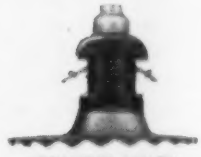
The truck, which was manned by volunteers and accompanied by Detective William Kempy, safety bureau combustibles expert, was escorted through New York's strike-bound streets by fire trucks and picked up by county police on entering Nassau. Cylinders were distributed to the sewage plants of Cedarhurst, Lawrence, Great Neck, and Oyster Bay, and to the Long Island Water Company. The remainder of the shipment was stored in the Public Works warehouse.

THIS HEAD WILL SIMPLIFY

Your
WAREHOUSING PROBLEMS

2500-10,000 LUMEN
Holophane Refractor or Rippled Globe.

2500-6000 LUMEN
18" Alzak Aluminum Spherical Bowl Reflector.



1000-6000 LUMEN
20" Enameled or Alzak Aluminum Bowl Reflector.

1000 LUMEN OR LESS
20" Enameled or Alzak Aluminum Flat Reflector.

Joslyn has designed this universal, integral-flange unit from which you can assemble practically any selected type of luminaire from 1000 to 10,000 lumens. Check these advantages:

No Adapters are necessary

Positive seal between head and lower assembly—no leaks

Easy Socket Adjustment for maximum efficiency

Easy conversion to other types of luminaires—on-the-pole

Joslyn street lighting luminaires and accessories offer you the finest quality in equipment PLUS maximum economy in stocking parts and in maintaining service. Ask our nearest representative to explain the many advantages of Joslyn street lighting equipment.

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Vol. LXI, No. 12 **The American City** *December* 1946

The Shame of the Cities—1946

By LUTHER GULICK
President
Institute of Public Administration
New York City

IT IS OVER 40 years since Lincoln Steffens made America wince with "The Shame of the Cities," though what he was talking about between 1902 and 1904 is quite different from what I shall talk about today.

Steffens' Story of Boodle, Graft, and Shame

You will remember Steffen's story. On behalf of McClure's Magazine he went to a half dozen leading American cities in which recent criminal prosecutions had disclosed the structure, the methods, and the politics of municipal corruption. He circulated among the politicians and the civic leaders, the grafters and their victims, and pieced together and published nationally what no local paper would have dared print: the story of rottenness, spiced with the details of names, amounts of bribes, photostats of graft records, and striking quotations of venal and cynical remarks by the righteous and by the sinners.

Old Fights in New Guises

Times have changed since then. But still we fight the old fights over and over again, though they come up in new guises, and challenge the good citizen in new ways from decade to decade.

Steffens said some hard things about the political boss, as have I on the basis of the record. But I want to point out to the reformers that the boss performs some extraordinarily important governmental functions at the same time that he is building his machine and collecting his graft.

Provide for Needed Services

When we rise up to destroy a boss and the boss system, let's check over the needed services now performed, to make certain that our new machinery makes adequate provisions for the things that have to be performed.

With the picture before us of bosses and corruption forty years ago and of corruption and bosses now, it is natural to stop and ask ourselves whether we have made any progress or not in all these years of reform and research, of extension of the suffrage and expanded education. It would be a rash man indeed who tried to give a comprehensive answer in a few minutes, but I wish to make a few observations as to the areas in which we have moved forward, and to recognize the areas in which we have lost ground.

Progress

First as to the progress, I think we may say:

1. There is now less direct thievery, less cash taken right out of the till; in fact, less in government than in private business. This is the direct result of better government accounting systems, and better auditing systems, both of which were almost unknown in Steffens' time.

2. There is now less mugging, kidnapping, and political murder. This we owe to national publicity and the general elevation of standards.

3. There is less direct vote fraud. This we owe to voting machines, national publicity, formal primaries, and the reduction of "one-party political systems" in what were once 99% Republican or 99% Democratic cities and states.

4. There is now less franchise boodling and sale of rights to use city streets, waterfronts, parks, etc., though this advance in morality seems to arise from the fact that the rights were all sold long ago, and that the franchise purchasers are mostly bankrupt, having turned their properties over to the cities now, because of the effect of fifty years of inflation on the value of the nickel.

5. There is, I believe, less raw sweeping patronage than in 1903, though the assessment system is perhaps more highly developed now. I

"WHO STOLE THE PEOPLE'S MONEY?" T'WAS HIM!

Municipal standards of honesty have advanced greatly since Boss Tweed and the New York Tammy Ring were thus caricatured by Thomas Nast in Harper's Weekly in 1871 and the exposures of city graft and corruption by Lincoln Steffens in his McClure's Magazine articles dealing with "The Shame of the Cities" in the early 1900's. Dr. Luther Gulick now suggests other types of progress that our cities need at present.

credit this change more to the "tenure system" that is, to permanent appointments than to the merit system, though the two often go hand in hand.

6. We have fewer sudden, hidden, crooked deals now, because we have much more publicity and control over budget, debt, and ordinance procedures, more clearly fixed responsibilities, a short ballot in some cities, and more professional officials and employes in local government and on the staffs of civic organizations. An important step forward is the professionalization and national organization of these public servants.

7. There is less municipal jobbery in the state legislature, by men who have no local responsibility, especially in some states where the legislature is largely debarred from dealing with local questions and these are turned over to home rule.

8. Our city voters are vastly better educated, more literate, better informed, and more American than they were forty years ago. In the process, the standards of decent official behavior have risen markedly, and an office holder would be ashamed to be caught in a deal today which would have been regarded as nothing more than "smart politics" in Steffens' time.

Retrogression

Against these eight points of unmistakable improvement, we must in candor list six points of retrogression.

1. Government is much harder to supervise now than it was forty years ago. It is more technical. It requires more professionals, and has less room for rotation in office of ordinary citizens, and thus more danger of bureaucracy.

2. Government does more, spends more, and regulates more now than ever before. At every turn there is danger of more rake-off and more special privilege than before. Our exposure to graft is greatly increased.

3. There is a vast expansion of legal graft arising from the enforcement of regulations and appeals therefrom, from court administration—bankruptcies, foreclosures, and estates. So, too, there is a rising tide of corrupt practice in the many services performed by private lawyers, accountants, architects, and engineers for private clients who, in the guise of defending their rights, seek special privileges of governmental, administrative, and judicial agencies. This is the great new area of American graft, presenting a challenge which goes directly to the heart of our noble professions and to the higher educational institutions of the country.

A Call to Action

In the opinion of the author of this article, the shame of the cities in 1946 is found in three things: first, ***lazy citizenship with low standards;*** second, ***lack of city pride; and*** third, ***failure to look ahead and make great plans for the future.***

Our shame is urban mediocrity without revolt; filth, slums, decay, and traffic snarls without action; private preoccupation and lazy contentment, without compelling civic loyalties or great civic dreams.

"Why," asks Dr. Gulick, "do we fail to make the modern city a center of pride to mankind, and a source of inspired and ennobled living?"

4. Another important change for the worse is the artificial constriction of city government boundaries, which has prevented the growth of city lines to cover the whole political, human, and economic area of the urban region involved. This artificial restriction of boundaries has left the city with all of the slums and none of the suburbs, with a geographic area too small to tackle the growing urban problems, and with a removal to the suburbs of most of the natural civic leadership of the area.

5. While the radio has expanded the opportunity for civic enlightenment, it is still the independent and fearless newspaper that exercises civic leadership. As to newspapers we are worse off today than we were forty years ago. There are fewer independent local newspapers, and fewer crusaders running them.

6. Finally, there has been a conspicuous failure to modernize American civic morality during the past two generations. Our world has moved so far and so fast in family life, in community life, in work relations, in economic affairs, in international affairs, that the standards of personal behavior which we call morality, and the relationships we call religion, have had a hard time to keep up with events. This is not the place, and I am not the man, to preach a sermon on civic morality, but as an historian of city corruption, I would be remiss if I did not record the lack of progress in forty years in America in developing higher standards of civic virtue and wider dissemination of such morality through our expanding system of free public education. America seems to me to be a nation not only adrift as to its moral standards, trying to navigate with obsolete charts, but more adrift now than forty years ago.

Thus we have made important procedural advances in restricting and controlling the shame of the cities; but we have gained no ground in fundamental moral standards.

The Great Failure of Our Cities

Therefore I don't think that graft and corruption and the dominance of bosses is the shame of the cities today as it was forty years ago. I think the shame of the American city today is found in three things: *first,* lazy citizenship with low standards; *second,* lack of city pride; and *third,* failure to look ahead and make great plans for the future.

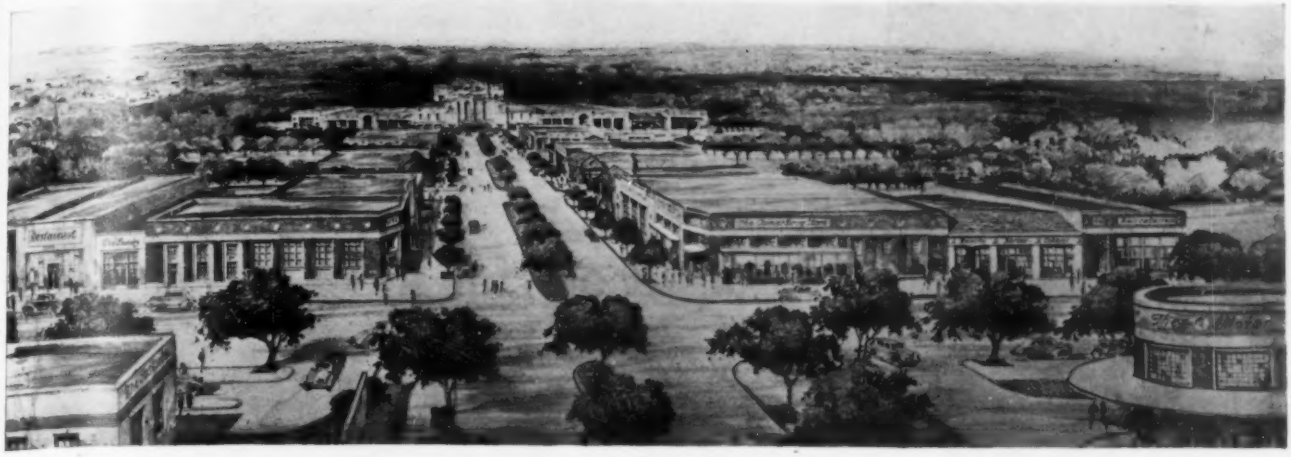
Our cities today are full of dirt, slums, and traffic congestion. Every city has its blighted central districts where offices, factories, tenements, streets, parks, and transport facilities are in various stages of obsolescence. Why don't we do something really effective about these conditions?

Why do we fail to make the modern city a center of pride to mankind, and a source of inspired and ennobled living? With all their failures, the cities of the ancient world and the cities of the Middle Ages did not fail at this point.

Therefore I say the shame of the cities today is not the graft, though we have graft; it is not the legal corruption I have described, though this is growing; it is not boss rule, though we abdicate our freedom to municipal oligarchies and entrenched dictators; it is not the tardy modernization of civic morality. I will tell you what it is. The shame of the cities in 1946 is the lack of city ambition and pride, the lack of great plans and dreams which have the capacity to enoble men's lives. Partly responsible are the lack of growth of boundaries to cover urban areas, the absence of fuller self-rule in the great cities, and the failure of citizens to work with devotion for broad public purposes, finding in such work the fulfillment of their individual social democratic drives.

Our shame is urban mediocrity without revolt; filth, slums, decay, and traffic snarls without action; private preoccupation and lazy contentment, without compelling civic loyalties or great civic dreams.

Excerpts from a talk delivered by Luther Gulick at the 50th anniversary National Conference on Government of the National Municipal League, at Philadelphia, November 11-13.



Sketch of the Shirlington Business Center which has been partially completed and is still under construction in Shirlington, Va.

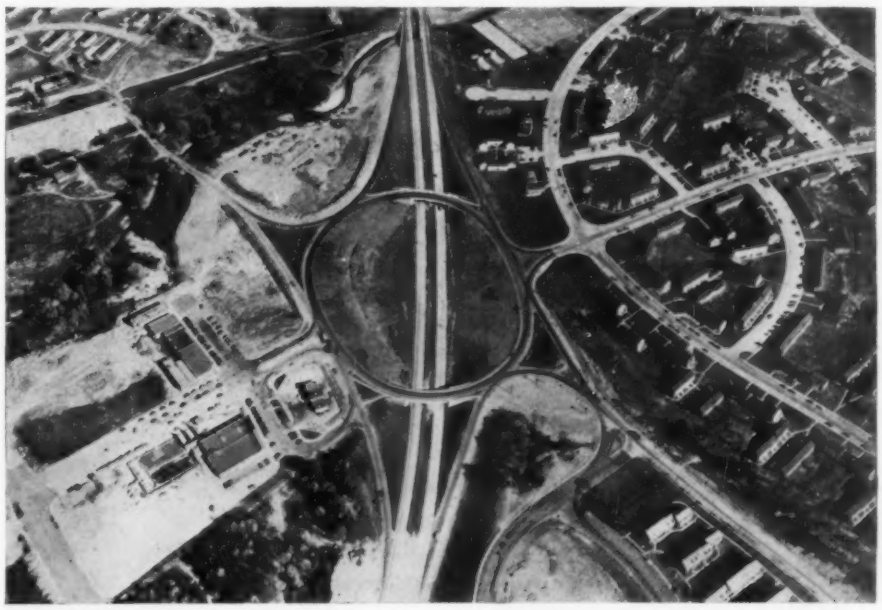
Large-Scale Shopping Center Develops

REPRESENTING an experiment in the planning of a large-scale shopping district, a multi-million-dollar 100-store business center has been partly completed in Shirlington, Va., a Washington, D. C., suburb. Under a program begun in 1943, some twenty-three stores are now in operation, and others are still under construction. The entire project is privately owned and is being developed by Joseph Cherner, wealthy Washington automobile dealer, who, oddly enough, first became interested in the project while searching for an airport site.

The center has a strategic commercial position on the four-lane Henry G. Shirley Memorial Highway, just two and one-half miles from the Pentagon Building on the main route south from Washington. Shirlington is also located in the center of two great residential developments, Parkfairfax, the Metropolitan Life Insurance Company project, with 1,684 family apartments in a 200-acre park development, and the even larger government project known as Fairlington, with an apartment capacity for 3,500 families. The center will accommodate these two developments plus an estimated half-million population within a five-mile radius.

Broad double-lane, 100-foot streets traverse the site, and its central thoroughfare has 20-foot islands which permit two cars at a time to turn without any possibility of collision. The islands will be planted with trees and shrubs. Parking space will be provided at the rear of buildings so as not to mar their artistic façades and to provide customers with a full view of all displays. The finished stores are all spacious and well-designed, and the site includes a post office and the largest theatre in northern Virginia. Controlled competition will be the guiding factor in selecting tenants, the Shirlington Corporation has stated. Because many families within shopping distance of the center have annual incomes averaging $5,000, stores selling products at higher as well as popular prices will be considered.

One interesting scheme is that a large department store will be operated under a plan originated by Edward A. Filene, famous Boston merchant and philanthropist. It will be owned jointly by the Consumer's Distribution and by local Virginians, who will be offered a chance to buy shares. The corporation's purposes will be (1) savings to consumers and (2) promotion of democracy through collective ownership.



The developing Shirlington Shopping Center is in the lower left foreground. The traffic circle ties together the center, the freeway, and residential districts.

Your Annual Report—

Make It Colorful and Keep It Simple

RECENT SURVEYS have shown that the average citizen, bombarded as he is by streamlined pamphlets, slick magazines, and colorful advertising literature, is showing increased resistance toward reading the barrage of publications which come to him. This is a fact of utmost importance to the municipal official struggling over the preparation of his annual report.

It means, in effect, that he is competing for his citizen-reader's time against an increasing array of professional talent, expert at the art of catching and holding the public's attention. He must make an extra effort to make the report readable, attractive, and interesting. He must use meaningful pictures, graphs, and charts wherever possible. He must give extra emphasis all the way through to interpreting municipal activities in picturesque, "punchy" style if the report is to continue to build effective citizen interest in the work of City Hall rather than be thrown into the wastebasket.

The Report Step by Step

The preparation of a good annual report must often begin well in advance of its final release. One man in the administration, preferably someone familiar with modern publicity and reporting techniques, should be assigned the responsibility for getting out the report—it should not be entrusted to any official who happens to be available at the moment for extra work. If one man is given this responsibility, he will be on the lookout throughout the year for photographs, material, and ideas. This will also make for promptness in getting out the report.

It is important to have an attention-getting, appealing cover, printed in positive bold colors. The additional expense of creating an imaginative cover will be but a small insurance payment against losing the reader's attention or never catching it. One possibility is to work with the school system's art department in holding a competition for the best cover design and for inside illustrations. This will stimulate greater citizen and student interest in the report.

Contents

When considering the contents, it is wise to look up state statutes pertaining to municipal reports and see what they require. Otherwise, the reports should be adapted to meet local tastes and should strive toward individuality.

The responsibility of the report writer is to give the public a picture of one year's record of work. In doing this, he has an excellent opportunity to gain public support for next year on the basis of this year's record. Moreover, it is an opportunity to talk with the citizens about the work of the city administration as a whole; to appraise its accomplishments objectively and study the reasons for its failures.

The contents should not be just "eyewash" or "whitewash" material of everything that has or has not been done by the administration. Honest objective statements will be much more appreciated and will aid the community in understanding and helping to overcome the administration's problems.

The report should have, if possible, an underlying theme — perhaps one major project or activity to which many of the departments have contributed during the year. The citizen should be made to feel that the community is alive and growing—that it is rendering an increasing range of services to him or bettering the administration of traditional functions. He should feel that he is a stockholder in a going concern, and that his participation is needed and desired.

Facts and Figures

An important general principle is to simplify and digest facts and figures and to interpret and explain freely. Only such facts should be included as

are significant parts of the picture. Costs, services, and programs should be *compared*—from last year to this year to next year. A spotlight technique of marginal notes or headings near tables of figures is often most helpful in calling attention to their significance for the citizen.

It should be remembered that the larger numbers are, the harder they are to grasp, and they should be made meaningful by being broken down—say to amount per citizen or amount per day. No number, standing alone, can hope to match the significance of two numbers compared, especially when the standard of comparison is familiar to the reader.

No hard and fast rules can be made for the contents and main sections of the report. The writer should be willing to experiment — imagination in handling the material is always welcome. Generally, though, municipal reports will naturally fall into six parts—although these can be rearranged and put into whatever order desired. The major divisions will probably be as follows:

A. Introduction
B. Legislation and General Administration
C. Municipal Services
D. The "Staff" and "Auxiliary" Services
E. The City's Finances
F. Planning Municipal Services

Introduction

In the introduction the following items might be included:

Directory of city officials
Title page
Foreword or letter of transmittal by municipal officer or manager
General information and data regarding the town, e.g., population, area, historical data, etc.
Calendar listing due dates for taxes, dates of elections, regularly scheduled meetings of boards and commissions, etc.
Organization chart
Table of contents
A review of the year, including "highlights" or outstanding accomplishments, some comments on the city's financial situation, and objectives and problems to be faced in the future
The citizen's part in government, in which it should be shown how city services affect the individual in his everyday life

In the section on municipal services, department activities and functions should be summarized and comparisons made with previous years. It should be emphasized that the citizen is usually more concerned with *what* the department does than he is with *how* it does it. This section might be divided into groupings of municipal functions rather than departments.

If the report is to have consistent treatment, the department reports should all ultimately be rewritten by one writer. This is in the interest of presenting an organized and integrated picture of municipal affairs.

The section on "staff" and "auxiliary" services should include brief descriptions of the activities of the city clerk, the municipal attorney, the personnel, and purchasing policies.

Format

Traditionally, annual municipal reports are printed. However, if budgets are limited, such processes as lithoprinting, photo-offset or variations of these processes should be investigated. Mimeographed reports also can be greatly enhanced by a little care in makeup and can be effectively illustrated with cartoons and diagrams.

Size: 6" x 9" is considered convenient for reading and filing. Smaller reports are kept for a longer time and are more useful to the average citizen than bulky and unwieldy ones.

Length: Fifty or sixty pages should be the maximum length. The writ-

er's efforts should be directed at interpreting and simplifying explanations of municipal activities rather than including voluminous, undigested statistics and factual material. The longer the report becomes, the fewer the people who will read it. The factor of length adds much to publishing expense. Plenty of illustrations should be used even if wordage is reduced.

Distribution: It is a general rule that sufficient copies should be prepared to supply each legally qualified voter with one and have some left for limited distribution elsewhere. An alternative is to send a copy to every home in the city: roughly, one copy for every four persons in the city. If this cannot be done, steps should be taken to determine the demand for reports—perhaps by sending applications to each home—and developing a mailing list. Reserve copies should be kept to fill requests during the year and to send to various state agencies concerned with municipal affairs and to other interested organizations and institutions. (Don't forget to send a copy to THE AMERICAN CITY.)

Mailing is too expensive for many towns. Police, fire, or public works department employes are often used to distribute the report. Local Boy Scout troops or school groups interested in civic affairs are another possibility. Each new family moving into the community should get a copy.

Publicity: After the report is released, local newspapers, radio stations, and libraries should be encouraged to publicize it; copies should be sent to schools for use in classrooms; it should be sent to chamber of commerce groups, women's clubs, and other organizations in the city; and it should certainly be issued to all municipal employes.

Reaction: A questionnaire or postcard should be included with each report asking for comments about the report and inviting suggestions for the improvement of the administration.

General Tips on Makeup:

1. Before getting too far along on the report or planning its format and appearance, it is best to consult your printer and get his advice on layout problems—what can or cannot be done within budget limitations.

2. Body type should be of moderate size. Ten or eleven point will be appropriate for most printed reports. Smaller type must be set in shorter lines.

3. Avoid excessively wide margins, but—be sure that white space surrounds all print masses. The entire type-page should occupy approximately two-thirds of the paper page.

4. Give attention to your headings—see that they are short, meaningful, well arranged, uniform, and stand out on the page in contrast to the body type. (The city of Rochester prints the headings on a colored background at the top and bottom of each page.)

5. Watch the spacing between lines of type. It should not be excessive, for that makes for high printing costs; however, it should be sufficient to make for legibility and attractiveness.

6. Select your paper carefully. Ask to compare samples and prices. Halftone cuts for illustrations require certain better types of paper.

7. Use thought in makeup. A report to be effective must be read. A report to be read must be attractive. A report to be attractive must be printed in easily read type, must be well arranged, and should be illustrated with charts and pictures.

Picture from an annual report of Berkeley, Calif.; Gerrit Vander Ende, Manager.

THE AMERICAN CITY is indebted to the following sources in the preparation of this article:

Specifications for the Annual Municipal Report—By Clarence E. Ridley and Herbert A. Simon. The International City Managers' Association, 1313 E. 60 St., Chicago. 1939. 59 pp. $1.50.

Annual Reports—How to Plan and Write Them—By Beatrice K. Tolleris. National Publicity Council, 130 E. 22 St., New York. N. Y. 1946. 39 pp. $1.00.

Annual Municipal Reports—Suggestions and Requirements. — Special Bulletin No. 16. Maine Municipal Association, Hallowell, Me. 1946. Mimeo. 9 pp.

Making Municipal Reports Readable.—New Jersey Taxpayers Association, Broad Street Bank Building, Trenton, N. J. 1937. 28 pp.

For helpful ideas on municipal reports and methods of graphic presentation, see the articles in THE AMERICAN CITY by Phillips Bradley, headed "Local Government is News" and "The Human Side of City Hall," appearing monthly from January 1941 to May 1945.

Municipal Reports Again Compete for First Place

THE INSTITUTE of Public Service, University of Connecticut, has announced its annual *Connecticut Contest for Town and City Annual Reports*. The contest is intended to encourage local officials to publish readable and interesting accounts of the accomplishments and needs of local government from year to year, thus arousing citizen interest.

This year's contest closes January 2, 1947. Until the closing date, any town, city, or borough in Connecticut may submit its annual report published during the calendar year 1946. To enter, send three copies of the 1946 report to the Institute of Public Service, University of Connecticut, Storrs, Conn.

The municipalities participating in the contest are classified in five population groups: less than 1,000; between 1,000 and 2,000; between 2,000 and 5,000; between 5,000 and 20,000; and over 20,000. The reports in each group will be judged according to *content, utility, legibility,* and *understandability*.

Water Pumping Improvement Eliminates Explosion Hazard

ROSS Pumping Station of Pittsburgh, Pa., blew up three times during the war. They weren't serious explosions, but they put all the boilers and pumps at the station out of operation long enough to be annoying. The reason for these interruptions was primarily low-quality coal.

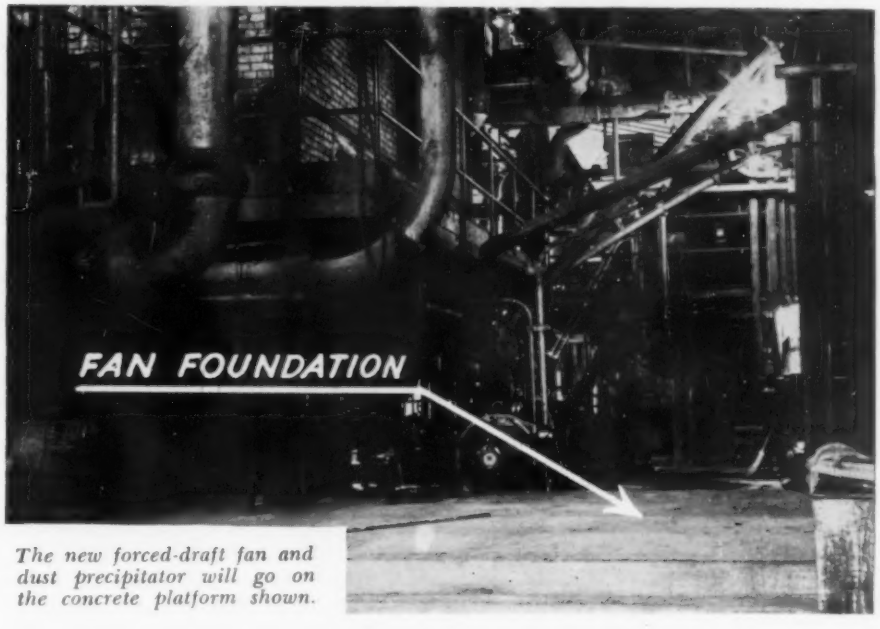
The Ross Station, a veteran in point of municipal service, delivers water from the Allegheny River to the city's filter plant. Power to drive the pumps came originally from a set of two stoker-fired boilers generating 150-psi steam, the boilers being served by a single stack 150 feet high. As time went on and the demand for water increased, the department added new pumps, utilizing the more efficient higher pressure steam. To generate this, department engineers installed a 325-psi B & W boiler with pulverized coal for fuel. This furnished steam to a 100- and 50-mgd De Laval turbine-powered pump combination. It could also furnish, through a reducing station, saturated steam to the lower pressure 100-mgd De Laval pump. The new boiler was served by the same stack that served the old, by means of a long path through a horizontal flue.

This arrangement worked satisfactorily as long as the plant could be sure of high quality powdered fuel. But as the war continued, the quality of this fuel dropped, and occasionally outages occurred in the boiler. As a result, powdered fuel worked its way into the flue, and when the fire was restarted the flue blew up.

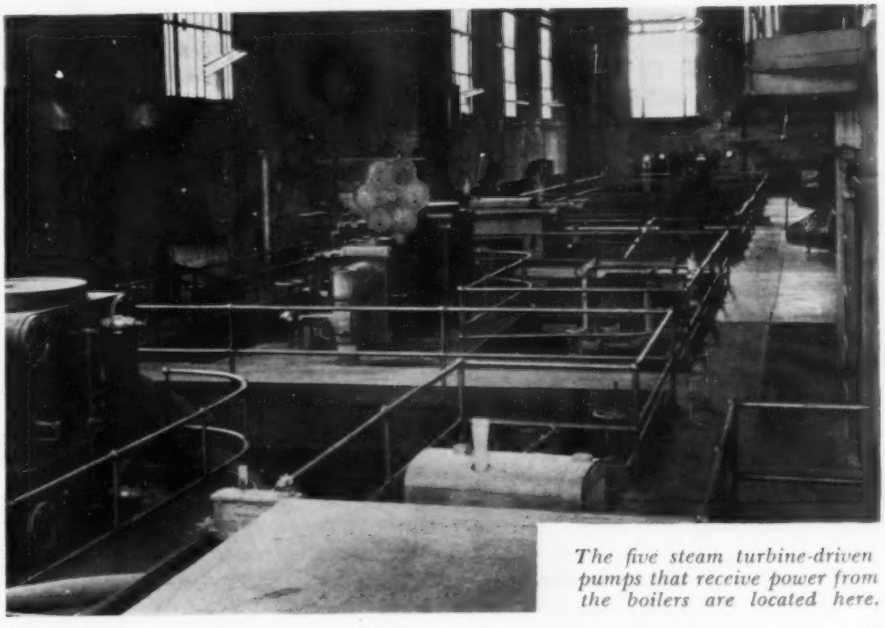
To eliminate this difficulty, the department of public works decided to separate the powdered fuel boiler from the two stoker-fed units. To do this, they are planning to install a Pratt-Daniel Thermix induced-draft fan and dust precipitator for this boiler, so that any difficulty that might occur will not impair the action of the other two boilers.

They also decided to install water walls in the older boilers to increase their rating, thus allowing them to carry maximum summer loads and possibly maximum winter loads on one boiler. This makes it possible to shut down part of the plant for maintenance work without cutting operations.

Plans are also being made for the installation of a 300-kw Westinghouse motor generator set to supply station service power. Also to be incorporated in the plant will be a 50-mgd electrically driven pump and a new 100-mgd vertical motor-driven centrifugal pump. The 50-mgd unit will replace a badly worn unit of the same size, while the other will have a capacity to meet Pittsburgh's unprecedentedly large demand for water, for Pittsburgh has experienced absolutely no reduction in the demand for water. Actually this demand has grown beyond any wartime figure.



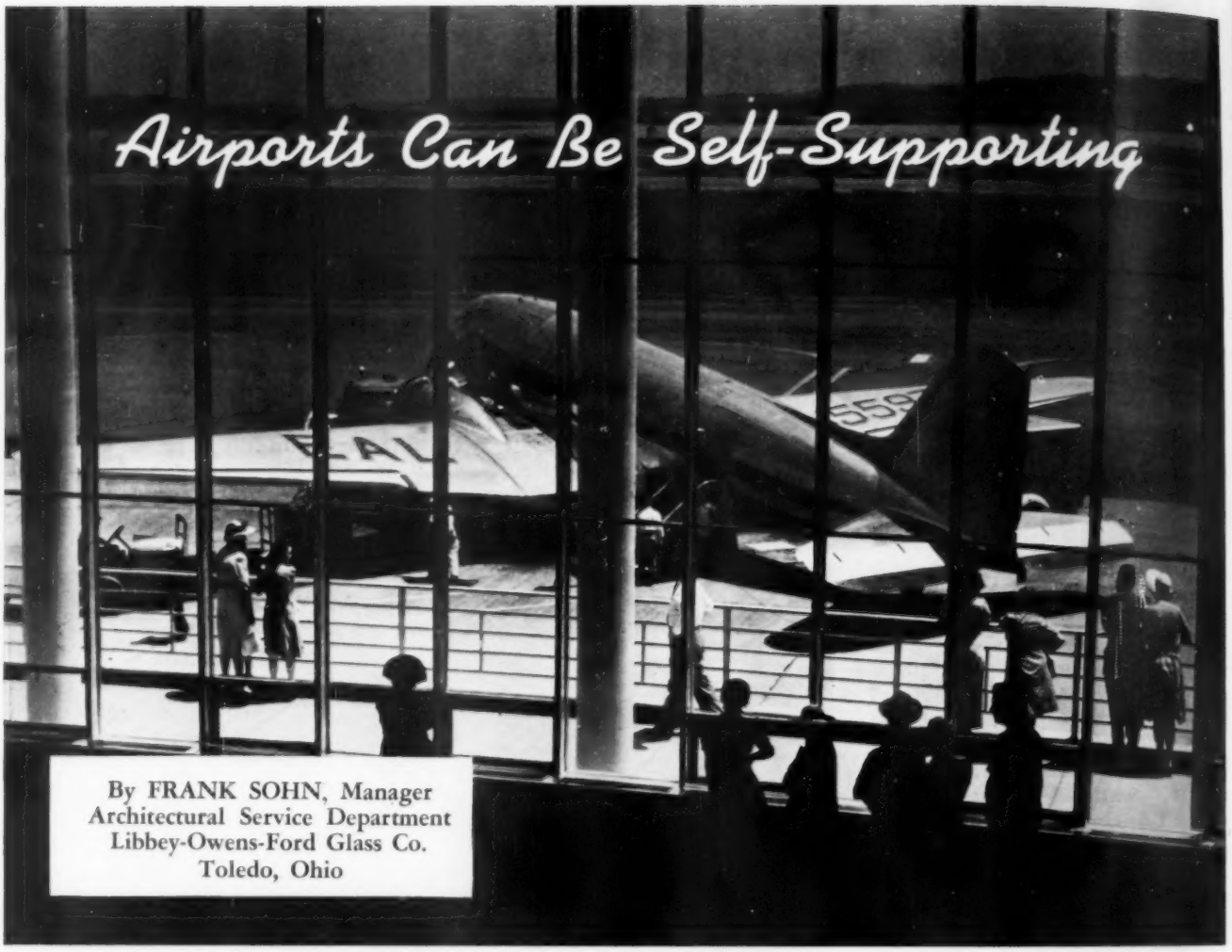
The new forced-draft fan and dust precipitator will go on the concrete platform shown.



The five steam turbine-driven pumps that receive power from the boilers are located here.

Airports Can Be Self-Supporting

By FRANK SOHN, Manager
Architectural Service Department
Libbey-Owens-Ford Glass Co.
Toledo, Ohio



Special provisions at Washington National Airport make it possible for visitors and passengers to watch planes being serviced between runs. Such features at glassed-in observation ramps, restaurants, and concessions attract spectators, help swell airport's receipts.

MOST AIRPORTS today are not self-supporting. They can be, and will be in the years to come. How soon this takes place depends in large measure on the kind of airports we design in the next decade.

Unless revenue-producing concessions are planned today as integral parts of buildings and fields, it is more than likely that many airports, both municipal and private, will continue to operate in the red.

These observations result from an analysis of airport building trends which the architectural service department of Libbey-Owens-Ford Glass Co. recently completed. At the outset the study was aimed merely at the extent of airport building; but, as it continued, facts cropped up which forced us to two definite conclusions.

The first of these conclusions is the admission that aviation is expanding so rapidly that an airport constructed today will not be permanently adequate.

Most airport architects believe—and strongly—that both buildings and field must be planned in a manner which will permit future expansion through the addition of wings to the buildings, extra loading areas, and additional runways.

"I challenge anyone to prophesy to what extent air travel will have expanded even five years hence," John W. Beech of Colonial Airlines has said, adding: "Any plans made in the past have had to be revised over and over again.

"Consequently, we favor a type of functional airport building that will allow for subsequent low-cost additions as new airlines move in to serve a particular city—a sort of 'packaged unit' that will give flexibility to existing buildings and provide for easy future expansion."

Secondly, the spectator—the airport visitor—is the hub around which airport income must be built. Aviation activities alone cannot carry the full load of expense. The airport that is virtually a recreation center for the community, in the sense that it provides service and entertainment for all classes and ages, will be the one that eventually operates in the black.

In addition, of course, the spectator is a potential air passenger and plane purchaser and can bring valuable revenue to the airport.

Most spectators have, in addition to a financial interest in the airport, a feeling of personal and community pride in the project. They not only want to sit and watch the planes take off and land, but they want to spend money at the airport to help it become self-supporting.

Most terminal building plans will provide the large window areas, the glass-enclosed "sky-top" restaurants and lounge, the study revealed. These are more practical than ever today because of a new insulating glass called Thermopane, double panes of glass sandwiching a dehydrated air space between them and sealed with a metal-to-glass bond. It not only aids air conditioning and sharply reduces window condensation, but it also cuts potential heat losses through windows as much as 50 per cent.

Responsible airline officials argue that no one can forecast accurately what long-range terminal requirements may be, and recommend small, functional buildings that lend themselves to expansion.

John Groves of the Air Transport Association of America, former manager of the Washington National Airport, expressed the second conclusion this way:

"Useful, revenue-producing concessions are among the most important considerations in airport design, second only to rapid and efficient handling of air passengers and cargo."

Spectators as Revenue-Producers

Of sixty-eight airports surveyed by the Civil Aeronautics Administration, only sixteen reported a profit over operation and maintenance costs in 1943-44. Income was derived principally from the sale of gasoline and oil and from hangar rentals. Some 3.5 per cent of income came from concessions and 1.0 per cent from lobby rentals. It is obvious that merchandising of new airport services to both passengers and spectators is required.

Spectators outnumbered passengers almost six to one at most of the smaller municipal airports. Even at Washington National Airport, one of the largest, almost twice as many visitors as passengers were counted in a three-month period recently. In April-May-June of this year, 334,887 passengers passed through, while in the same period it was estimated that more than 640,000 spectators visited the field.

The turnstiles leading to observation ramps at Washington grossed $55,000 in the first year of operation. Similarly, at New York's La Guardia Field more than 1,000,000 visitors annually yield $100,000 through the dime turnstiles alone.

Francis R. Meisch, noted airport architect for Northwest Airlines, whose design for an airport terminal building for small cities is reproduced in the center of this page, recently observed:

"Few of the early air terminals were built with the spectator in mind, but now we know the importance of providing for these people. Municipal airport buildings in the role of community recreation center, and as self-liquidating financial ventures, are related problems which must soon be solved."

The total revenue for all fields in 1939, the last year for which statistics are available, was $2,730,702 against expenditures of $4,634,070. Of these amounts, says Lowell H. Swenson, manager of the National Aeronautical Association, hangar and storage fees and the sale of gasoline and oil constituted the bulk of revenue—45 per cent—while salaries accounted for 43 per cent of the expenses.

Swenson further stated: "I have never heard of any airport revenue amortizing bond issues . . . it is impossible to amortize airport construction out of the airport operating revenue, or out of gasoline taxes on aviation fuel for that matter."

Less than 20 per cent of the existing 3,000 airports in the nation's network are equipped with administration buildings and only eight hundred have office buildings, the study revealed.

Design for a terminal by F. R. Meisch.

There is consequently, an opportunity to build really functional structures which will serve the future as needs for expansion arise and that will include provisions for income-producing concessions. But smart planning and smarter management is required.

Just what are the concessions that will produce revenue? Following is a partial list, some common to almost all airports, some seldom seen, some never even tried:

Hotels, garages, gasoline service stations and parking lots for automobiles, spectator ramps, sky-room dining rooms, cigar counters and newsstands, retail shops for novelty and gift items, barber shops, branch banks, drug stores, bowling alleys, swimming pools, dispensing machines for candy bars and gum, newsreel theatres, taxi and bus drivers' franchises, drive-yourself cars, steam baths and showers, luggage lockers, telephone booths, and telegraph offices.

What they will yield, individually or collectively, is difficult to answer because of dissimilar circumstances in the various airports. The point, however, is that unless these concessions are emphasized in the building program, with space and facilities provided for them, the airport may never approach financially successful operation.

John Groves of the ATA partially answered the question of yield in noting that:

"The paper cup concession alone in an airport may bring sufficient income to pay an accountant's salary. In addition to such basic facilities as restaurants, newsstands, soda fountains, and coffee shops, other simple concessions which are not at all out of line are dry-cleaning and laundry facilities, barber shops, and beauty parlors. A charge for preferred parking space for autos has sometimes been made with good results."

Spectators Are Also Taxpayers

Hand-in-hand with the problem of income for airports is the role of the municipal taxpayer. Groves continues:

"Taxpayers will not put up with throwing deficiency money into airports for long. Fixer fees from the airlines are insufficient to carry the entire load of airport expense and, besides, if the airlines are forced to bear the full brunt of expense, passenger rates may ultimately be raised with the result that air travel might be retarded.

"Air terminal buildings, while remaining functional, may be designed to give people a good look at the airport field. These people vote bonds and pay taxes and as such they have a legitimate right to view air operations."

Meisch of Northwest Airlines sensibly links the role of the spectator with the problem of traffic control within the terminal. He says:

"Adequate, comfortable spectator galleries should be provided, but the spectator must also, for the sake of orderly and efficient traffic control, be segregated from the passengers. Thus, there is the development of glassed-in observation decks and open-air promenades, generally located at the top of the building.

"The monumental type of airport terminal building must give way entirely to more functional structures capable of expansion as future needs arise so as to provide for the continuous and orderly flow of passengers, spectators, freight and express.

"Unless we look far, far into the future of aviation at every turn, we shall continue to find aviation's land facilities in the same inadequate stage they are at present."

The Gloversville water purification plant against a snowy background.

Good Water for Gloversville

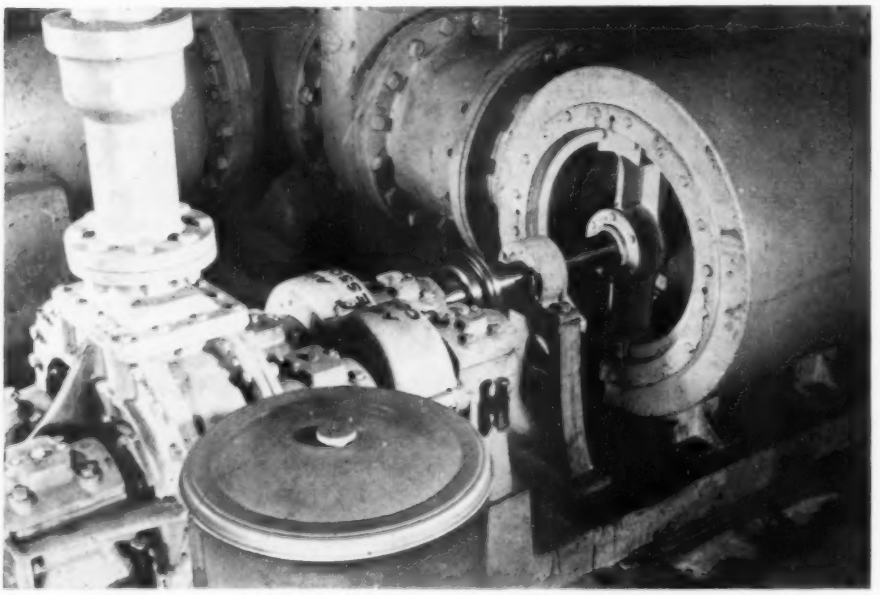
By W. F. DAVIES, Superintendent
Gloversville, N. Y., Water Works
and
R. S. TAGGART
District Sanitary Engineer
New York State
Department of Health

IT IS NO secret that Gloversville's prosperity is due, in large measure, to its spendid water supply. Soft, pure water from the green hills of the lower Adirondack ranges has made possible the tanning of high-grade leather and the manufacture of fine leather for which Gloversville is justly famous.

This essential community resource has been conserved and ably administered by public spirited citizens who have served on the Board of Water Commissioners. These men have persevered in the development and improvement of the Gloversville water works, keeping this system abreast of the progress in the water supply field.

The city water supply system began to serve the community in 1877 when water was piped from two small spring-fed reservoirs north of the city. With the growth of the city and increased consumption of water, several major additions have been necessary to insure an adequate supply. In 1885 the small Potter reservoir was constructed. Then in 1889 the small reservoir was built at Rich Creek, and later enlarged to the present 90-million-gallon storage reservoir. The Port Creek source was partially developed in 1912, and the use of Cameron Pond was begun in 1918. When a shortage threatened in 1930, preliminary work was started toward the development of the Jackson Summit reservoir, with a capacity of 360 million gallons, which was completed in 1935. During subsequent years, with a combined storage of 560 million gallons, the Gloversville supply has demonstrated its ability to pass through seasons of drought with adequate reserves of water remaining.

This Roots-Connersville blower is used to supply air in connection with the rapid mix in the flash mix basin and in the coagulation basin as the water leaves the reservoir.



The first watershed forest in New York State was planted by the city in 1909. The forest of stately evergreens now stands, a thing of marked beauty, protecting the sources of supply against silting and eroding flash discharges.

Gloversville's modern 6-mgd water purification plant was completed in 1940 as a PWA project. It was the desire of the Board of Water Commissioners to improve the quality of the water and especially to prevent or remove colors, tastes, and odors, as well as to maintain high sanitary standards. With the advice of George E. Wilcomb, a well-known water supply expert, plans were prepared for the water purification plant by the firm of Morrell Vrooman. Construction was started in the fall of 1939 and was pushed forward to a successful completion early in 1940.

In the completed system the flow of water is entirely by gravity. Water from the Jackson Summit and Port Creek reservoirs discharges over splash step aerators into the Rice storage reservoir. From the Rice storage reservoir, the water passes into the intake, goes through on Aer-O-Mix aerator, and is then conducted to the purification plant through an 18-inch cast iron line. On entering the plant the water is measured through an 18-inch Builders-Providence venturi, and discharges through the flash mixing chamber where alum, and at times activated carbon, are added, thence to the flocculation or mixing basin. Here a gentle agitation, caused by around-the-end baffles, forms a sizable tough floc in the water and carries it to the line leading to the settling basins. After a settling period of three hours, the water flows to the six open sand filters and discharges to the 2.5 mg clear well.

Between the filters and the clear well, chlorine and ammonia are added to maintain a residual disinfecting action throughout the distribution system. Calgon is applied, also, to minimize corrosion after the pH of the water has been adjusted by the use of soda ash to a value of about 7.5.

Six Roberts filters of the rapid-sand type, of 1 mgd capacity each, form the central working unit of the plant. The filters have underdrains of the Wheeler false bottom type. Supporting the filter sand and covering the Wheeler bottom are 12 inches of gravel in four grades. The sand beds are 32 inches in depth; the effective size of the sand 0.49 mm. in diameter. A set of Ludlow hydraulic valves controls the operation of the filters.

Operation

Thanks to the reserve capacity of the plant and the adequate storage of filtered water, it is possible to operate the plant on a six-day-a-week schedule, and to shut down for about nine hours each night. The operating staff of chief operator and four men is divided

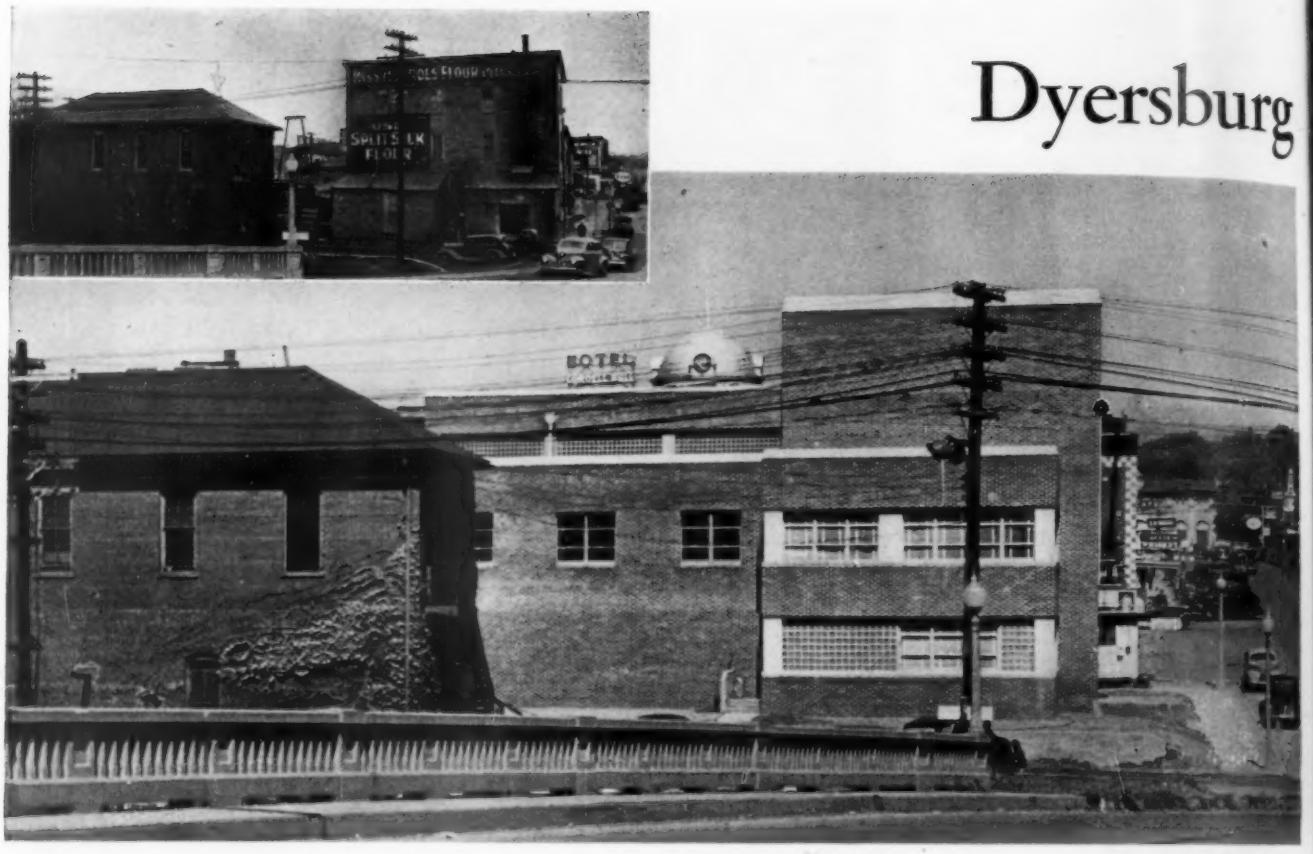
(*Continued on page* 133)

TOP RIGHT: *There are two of these splash areators: one for the Port Creek reservoir and one for Jackson Summit. In this setting they look more like park decorations than pieces of water works equipment.*

CENTER: *The ninety-million-gallon Rice storage reservoir, through which water from the Jackson Summit and Port Creek reservoirs passes to the treatment plant.*

BOTTOM RIGHT: *Long-range reforestation to protect the watershed has resulted in abundant growth of marketable timber.*

Dyersburg



Before the new treatment plant was built, visitors' first glimpse of Dyersburg was "Miss Monroe's Flour Mill," shown in the inset. The trim building that replaced the mill, after delays caused by wartime restrictions, makes quite a different impression.

By ELLSWORTH L. FILBY
Black & Veatch
Consulting Engineers
Kansas City, Mo.

DYERSBURG, Tenn., population 10,034 in 1940, has had an iron removal problem for many years. The water supply comes from four wells—three of which are equipped with deep-well turbines and one with air lift—averaging 650 feet in depth and located along the north bank of the Forked Deer River. The natural water is quite soft, averaging about 60-ppm hardness; but the dissolved CO_2 ranges from 36 to 86 ppm and the iron from 2.6 to 8.0 ppm. The quantity is ample, each well producing from 1,000 to 1,500 gpm. The city has had an iron removal plant consisting of dual cypress settling tanks and tub filters and a small clear well. Although rated at 600,000 gpd, it has been inadequate for many years, and rusty water has been the bane of Mrs. Dyersburg's existence.

The city first decided on a modern plant in 1941 and received bids in the spring of 1942, but WPB blocked this move by refusing to grant priorities. The federal government offered to assist in financing a very cut-back program, but the city decided to wait. Costs, meanwhile, rose rapidly. In September 1944, the project originally estimated at $140,000 was awarded for $197,500. It has just been formally dedicated.

The new plant occupies the site of "Miss Monroe's Flour Mill," an old eyesore on the main entrance to Dyersburg from the south. Offices in the oil filter plant building have been moved to the new plant, and the old reservoir has been connected to the new.

The well water is delivered through a collecting pipe header to either of two aerators located in the north end of the building. Each aerator unit consists of four trays each in four tiers. The trays are of cypress with slatted wood bottoms and are filled with 6 inches of crushed limestone. Water is distributed from the inlet pipes by means of a perforated steel plate. The water falls a distance of 7 feet. Both aerators may be by-passed. An exhaust fan is used to remove the released CO_2 and H_2S gases. After aeration, the water is piped to duplicate "roughing" filters and flows up through 45 inches of coarse gravel. These filters are each 15 feet by 12 feet in plan and are "washed" in the usual manner. The filter effluent is quite clear and is piped from the top of the filter units through a baffled end-around mixing channel where lime hydrate and chlorine may be added if desired.

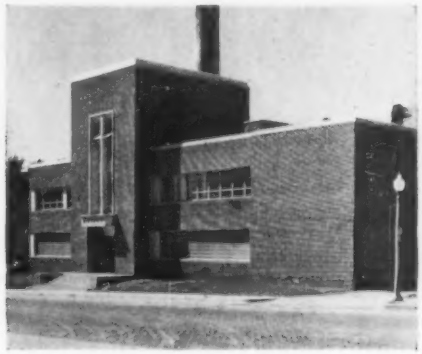
After mixing, the water flows through duplicate covered settling basins, each 16 feet by 65 feet in plan and with 16 feet water depth at overflow elevation. A covered outlet flume then carries the water to the influent line to four rapid sand filters of the standard downward flow type. Each of these units is equipped with Simplex loss-of-head and rate-of-flow gauges, while the roughing filters lack this feature. All filter valves are hydraulic and are governed from Bacharach control tables which also have indicators to show the clear water depth gauge. Each final filter is 15 feet by 12 feet in plan and has 30 inches of sand supported on 9½ inches of graded gravel. The filter bottoms

Builds Iron Removal Plant

Housewives get a break and the municipality removes an eyesore when the water department builds an attractive iron removal plant that graces the main approach to the city.

The office of Superintendent Blakeman.

These filters have automatic controls.



Front view of the water-treatment plant.

are of the Leopold type with concrete cubicles and porcelain tubes. Wash water is supplied from a 25,000-gallon wooden storage tank located in the tower of the building. The tank is filled by a small Layne turbine pump in the pipe gallery. The clear water storage beneath the structure and that in the old clear well exceeds 500,000 gallons.

Features of the Plant

The building is constructed of brick with cut stone trim, glass brick, and corner window construction. The water plant is directly across the tracks from the municipal power plant. The entrance level consists of a lobby, a laboratory fitted for coal and water analysis, toilet and shower facilities, a storeroom, and a service entrance. A door shuts off the pipe gallery, and the settling basin is "camouflaged" with glass brick along the outside wall.

On the second floor are the offices for the utility superintendent, his secretary, and the board of control. Also available are offices for the water plant operators and a draftsman. A chemical storage room with a Wallace & Tiernan dry feeder for lime and an Omega solution feeder for hexametaphosphate are just off the upper lobby. The chlorine room is a glassed-off partition in the chemical room, and the chlorine may be applied to the clear well or into the mixing flume leading to the settling basins. The filter operating floor opens off the upper lobby. The wash water tank is in the tower.

The floor finishes throughout are of terrazzo, and the walls are of a very pleasing soft green texture tile. Recessed lighting has been used where possible. The offices have a dark green linoleum floor.

The high service pumping units are in the power plant building, and the suction piping is so arranged that either the new or old clear well may be directly used.

Results of Operation

The plant has been in successful operation for several months; but due to lack of certain laboratory equipment, detailed analytical results are not available. The iron, however, is below detectable amounts, and the staining of fixtures and linens is only a memory. The plant capacity is variable, as the rate of filtration may be varied. At present the four final filters, having a total of 720 square feet of sand, operate at a "rated" capacity of three gallons per square foot; the plant can produce 2,160,000 gpd, and, with a temporary 25% peak overload rate, will produce over 2.7 mdg. A by-pass valve connection will permit by-passing the settling basins so that aerated water may be taken direct from the roughing to the final filters. During 1946, the August average pumpage was 1,211,000 gpd with a maximum per day of 1,363,000.

The plant was constructed under the direction of L. D. Hamner, mayor, and S. R. Blakeman, superintendent of utilities. The general contractor was Forcum-James of Dyersburg, and The E. W. Bacharach Co. of Kansas City handled the filter piping and equipment. Design and supervision of construction was done by Black & Veatch, consulting engineers of Kansas City, Mo.

When the snow begins to fall, salt begins falling too in the snow removal work of the Hartford, Conn., street department.

This street, after salt had broken up the snow and ice, was open for early morning traffic in spite of the 4-inch fall.

Hartford Solves Its Snow Problems

By ROYAL W. THOMPSON
Superintendent of Streets
Hartford, Conn.

IN SPITE of the extremely heavy snow storms of the past several years, Hartford was a snow-free city last winter, and local residents referred to the city limits as "out where the snow begins."

Snow storms don't actually avoid Hartford. But last year while surrounding towns were tied up for several days as they struggled to dig out after heavy storms, our streets in downtown Hartford were clear of snow and ice and carrying their normal traffic load.

Saving Time and Money

By revising our winter maintenance policy we were able to set up a few new records for speedy and complete snow removal, saving a good deal of money for the city and cutting costs approximately 50% over the previous year. In 1944-45 the city spent $88,582 to remove 66 inches of snow. Last year the street department cleared off 78.5 inches—20% more snow—at a cost of $73,407. In other words, in 1944 it cost approximately $1.342 to remove 1 inch of snow; last year the cost was down to $934 per inch.

Salt Produces the Savings

This is no criticism of 1944's operation. The organization was good, the equipment gave a good account of itself, and the men worked hard and loyally. Our money- and labor-saving device was rock salt. Last winter, with snowfalls averaging from 5 to 18 inches at freezing temperatures, and with a few storms lasting twenty-six hours, we had plenty of opportunities for testing our method under all sorts of snow and ice conditions.

Salt Spread at Start of Storm

We not only successfully solved tough winter snow problems but we also managed to produce the effect of "now you see it—now you don't" in our operations. We spread about a ton of rock salt to a mile of road *at the beginning of each storm*. In a heavy fall, or during a continuing storm, or in an ice storm, we found that the rock salt bored down through ice and compacted snow, loosened it, and prevented it from bonding to the pavement. The only time we can plow our main arteries and downtown streets is between 12 midnight and 6 a.m., when parking restrictions are in effect; salt kept the snow soft and mealy until we could plow. Generally it was not necessary to plow at all because the rock salt melted part of the snow, and, with the aid of traffic, flushed it to the gutters. The small amounts of dilute salt or brine remaining provided insurance that freezing rains and snow that might follow immediately afterward would not bond to the pavement.

Complaints in the Past

Before we began using rock salt, merchants reported that business fell off considerably during and after a storm because customers couldn't reach the stores from outlying districts. Accidents caused by skidding and collisions on slick roads rose, and complaints of all sorts kept coming in. The buses could not operate without chains for days at a stretch, and schedules were slowed down considerably.

Business Improved

Last year, however, all this was changed. During one particularly bad storm, Hartford was the only city in Connecticut where buses ran. The Connecticut Company, which operates our bus lines, reported that schedules were not only met, but winter operating costs were cut. Accidents were reduced, with resulting additional savings in claims and equipment repair. Their drivers have been enthusiastic about Hartford's new deal for winter driving, and the company itself insists that our new snow-removing method

is "the greatest thing that ever happened to the city."

Downtown merchants were in complete agreement with this statement, since they were assured of normal business no matter what the weather conditions were. Car owners were pleased, for they could shop without worrying about the possibility of finding their cars stuck in icy snow piles, and other shoppers using the bus lines could count on getting to and from the stores without being stranded in the cold without transportation. During the Christmas holidays, the stores added an extra day's business to their record. Even the milkmen stopped disturbing the early morning sleep of Hartford's residents, since their trucks no longer jolted over ice bumps, filling the air with the loud noise of rattling bottles.

Because of such excellent results last winter, we plan to enlarge our present storage space and build another big warehouse to store more rock salt this year.

Most Streets Are Asphalt

Hartford has about two hundred miles of streets, of which about sixty-two miles are sheet asphalt and bituminous concrete, about three miles of portland cement concrete, and about a mile of granite-block paving which has virtually all been covered with bituminous concrete during this construction season. The remaining mileage is waterbound macadam.

Our salt operations are conducted on some ninety miles of streets which include almost all of the sheet asphalt and concrete pavements, the remainder of the mileage being on the waterbound macadam. We have hesitated to use the salt on concrete pavements less than four years old even though air-entraining cement was used. However, the concrete decks of two bridges constructed this year were treated with two applications of linseed oil and turpentine, which is supposed to prevent the concrete from scaling for the first three or four years until it has reached sufficient age where the effect of the salt would not be noticeable. On the portland cement concrete streets where we have applied salt, we have had absolutely no scaling to date.

We have received no criticism from the motorists regarding corrosion or damage to the under part of their cars. The salt apparently has no effect on pre-treated metals or painted metals. It will, however, increase the rate of corrosion of car metals where the enamel covering is gone and the metal itself is rusted by the natural elements.

Equipment

Our salt is spread by means of seven Burch spin spreaders and six Flink automatic spreaders installed on trucks furnished by the Connecticut Company, the local private company that cooperates with the street department in the removal of snow and ice. We use some forty-eight snow plows, of which about twenty are owned by the street department and the remainder hired by contract. The snow is actually removed and carried away from approximately forty-five curb miles of street, an operation which is accomplished by ten snow loaders owned and operated by the city of Hartford. Some of the loaders are mounted on tracks, some on solid rubber, and some on pneumatics. We have three makes—Haiss, Barber-Greene, and Nelson.

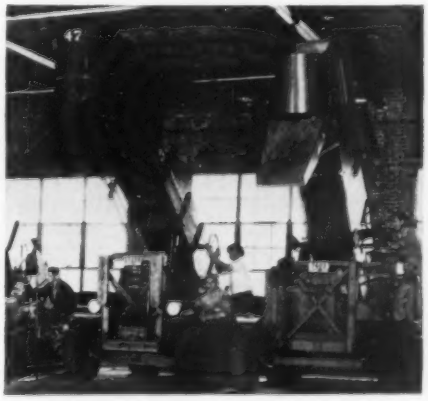
We also operate two Walter snow fighter trucks, that is, the four-wheel-drive with a front-end plow and center pressure blade. We find this most helpful on the second and third days of our snow loader operation, when the snow at the curb becomes somewhat packed in plowing it away from the curb with the center blade and then back to the curb with the front-end plow. This operation breaks up the compacted snow and makes the loading operation much easier. We also operate three Case tractors equipped with rotary brooms and 5-foot snowplow blades for crosswalk and sidewalk clearing.

An application of salt at the beginning of a storm plus well-coordinated operation of equipment gives Hartford, Conn., the name of "Snow-Free City."

In addition to the salt, trucks with Good Roads plows help in the snow removal.

A Case tractor equipped with a rotary broom takes care of clearing crosswalks.

Workmen attach the plow to a Walter snow fighter; it is used for heavy work.



Maintenance men check over the snow loaders so they'll be ready for instant use.

Snow Orders

Excerpts from New York City's Operation Manual No. 1, "Snow Orders"—section devoted to operations —prepared by the Department of Sanitation; William J. Powell, Commissioner.

DURING a snow storm orders will be issued from the Snow Office directing districts to send out sand and salt spreaders, rotary brooms, all types of plows, and snow-loading machines.

Routes are laid out so that each one will be covered (round trip) at least once every two hours. Successive trips will be made continuously until the storm has ended, at which time the route should be entirely cleared of snow.

Equipment Ordered Out

Rotary (Snow Brooms): Rotary brooms are ordered out at the beginning of a snow storm for the purpose of sweeping snow from bridges and express highways.

Spreaders: Sand and salt spreaders are ordered out early in a storm and usually remain out for the duration of the storm for the purpose of preventing the formation of ice on the streets and also for reducing the accumulation of snow and ice. Salt must not be used on bridges, bridge approaches, concrete pavement, or within one city block of any thoroughfare having street car electric cables underground.

Plowing: When the accumulation of snow becomes so great that it cannot be cleared with salt alone, plow equipment begins to operate.

a. The purpose of plowing is to clear snow from the travelled area of roadways by plowing it to the sides or centers of streets, express highways, and bridges, and further to clear crosswalks near side car and bus stops, intersections, and catch basins.

b. Crosswalks must be cleared of snow for a distance of at least 20 feet in all directions.

c. No crosswalk plow shall be used for piling or sewering snow until all crosswalks in the district have been cleared.

d. District superintendents will have section officers organize small gangs of labor to augment the force of crosswalk plows for the purpose of clearing crosswalks. This work will be the first to be performed when orders are issued to begin work on snow.

e. Plows will be worked in teams of two or more machines. The second plow will be operated close to the rear of the first, and in position to take the ridge made by the first plow. The second plow will at the same time clear an additional area equal to that cleared by the first machine. Supervising officers will see that this procedure is followed.

f. Should drifts or accumulated piles interfere with the free operation of a plow, no attempt will be made to move all the snow at such points with a single operation. One plow may be operated directly in the rear of another, the first with the blade raised to remove half of the snow, and the second with the blade lowered to remove the remainder.

g. In order to prevent accidents while engaged in sewering and piling operations, the following precautions should be taken:

(1) When backing the vehicle, the chauffeur shall be guided by another man stationed where he can give proper signals to the operator to prevent him from backing into cars which are parked or may have driven up behind the plow since the last backward movement was made.

(2) The man guiding the vehicle must not stand on the running board.

(3) In case of any accident due to backing-up vehicles, the man assigned to guide the operator shall also receive a complaint.

h. Mechanics will be assigned to each garage where plows are attached. A sufficient force will remain on duty after the plows have been attached to make minor repairs to damaged plows and motor apparatus.

Sewering: Sewering has proved to be the fastest and most economical method for the disposal of snow; therefore, it is imperative that all snow be sewered where possible. District superintendents will prepare in advance of the winter season schedules for the sewering of snow, utilizing every available sewer. The following regulations will govern the use of sewers for the disposal of snow:

a. No manhole shall be opened except when being used for disposal of snow. When manhole covers are removed, sewer crossbars must always be used except as stated in item "h" of this paragraph.

b. Before depositing snow into a manhole, sanitation men must see that the sewage is flowing; that it is free from any obstruction; and that there is a sufficient flow to carry away the snow—especially at night, when the flow of water in sewers is at a minimum.

c. When necessary to increase the flow of water in sewers, a hose stream shall be used.

d. Care must be taken to prevent sewers from choking because of too-rapid feeding of snow. Snow should

be pushed into manholes at a uniform and continuous rate.

e. Should the flow of the sewer fail to carry the snow away, panning at the manhole will be discontinued until the flow in the sewer has been restored. While waiting for the flow to be restored, snow shall be piled at curb near manhole.

f. Utmost care must be taken to prevent choking when plows are used in sewering snow.

g. The District Supervisor of Sewers shall be notified immediately, through district headquarters, in all cases where the flow of sewage or the water from hose streams is unable to carry away the snow.

h. All snow deposited in sewer manholes shall be free from sticks, stones, ice, cans, ashes, garbage, and other material which would impede or obstruct the sewer in any way. Clogging of sewers with the aforementioned materials is inexcusable.

i. When a squad or gang is working over a sewer at which trucks are dumping snow, one man shall constantly guard the open manhole. Where a small squad is employed (two to four men) and an employe is left guarding the open manhole, a sewer crossbar must be used.

j. When hose-flushing gangs are ordered out to flush a light snowfall into catch basins, the hydrant men must carry a panscraper so that they may clear the corner catch basins of slush washed down by the hose gangs.

k. Bleeding poles shall be used on all catch basins that are known to the foreman to be slow drainers.

l. All instructions received from the District Supervisor of Sewers shall be followed implicity.

Scattering: When the weather reports indicate that above-freezing temperatures will prevail, it is advisable to scatter snow from piles and ridges into the path of vehicular traffic. Care must be taken during this operation in order to prevent the scattering of too large an amount of snow into the roadway, where it would impede the flow of traffic or otherwise become a safety hazard.

Flushing: When the weather reports indicate that above-freezing temperatures will prevail, it is most important that every available flushing machine and hose-flushing gang be utilized. Hand flushing is particularly effective in clearing the streets of snow and ice. The same precautions and methods employed when flushing during summer months will be followed. In addition, pertinent regulations regarding the use of hydrants and sewers during the winter season and appearing in this manual will be complied with implicitly.

Piling: When the accumulation of snow, combined with a forecast of below-freezing temperatures, makes it impossible to dispose of snow by sewering, scattering, flushing, and the use of salt, it becomes necessary to place the snow in piles from which it can be disposed of at a later time. The operation of piling shall not commence until all crosswalks and car and bus stops have been cleared of snow.

a. Make piles large.

b. Place piles on both sides of streets, as far apart as possible, but not opposite each other.

Hauling: When a large snow storm necessitates the piling of snow and the building of large ridges by repeatedly plowing the same routes, it becomes necessary to remove some of this accumulation by hauling. *Under no circumstances will snow be hauled from streets where sewers are available for snow disposal.* Department equipment, augmented by hired trucks, will remove snow from locations where it is impossible to sewer snow and where said locations are not assigned to contractors or railroad companies.

How to Use Winter Weather in Preparing Beach Areas

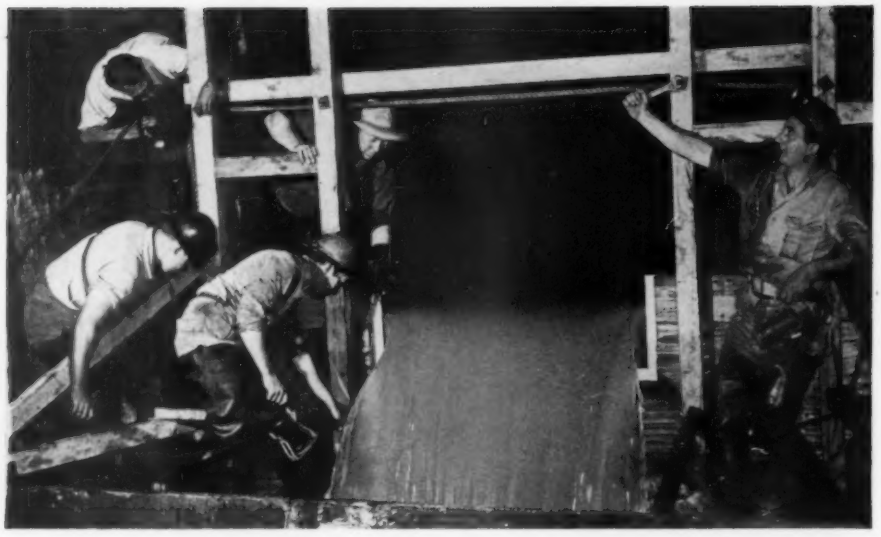
A METHOD of preparing beach areas, successfully used by the Minncapolis Park Board depends on a freezing climate for effectiveness. This method can undoubtedly be used in other areas that are blessed with such a climate.

Many municipalities probably have within their boundaries bodies of water which, with a little effort, can be transformed into fine swimming areas. A big obstacle is the difficulty of sanding the under-water bottom of such a body of water. The Minneapolis Park Board has one answer. The best and cheapest method for dumping sand over a proposed beach swimming area, the board has found, is to run a dump truck on the lake surface in the winter time when the ice is thick enough to support it.

The sand is piled on the ice by releasing it from the truck. Of course, the quantity of sand used will vary greatly according to the condition of the beach. When the ice melts, a process hastened when the sand is on it, the sand will distribute itself evenly on the bottom; and when the swimming season opens, the bottom will generally be in good shape. However, the Minneapolis Board warns, only a very good grade of sand, with very little clay or loam, should be used.

Correction

The October issue of THE AMERICAN CITY *carried on pages* 86 *and* 87 *an article entitled "Doubled Asphalt Layer Improves Fort Dodge Streets." Both the story and the picture caption identified the rollers incorrectly. The photograph on page* 86 *showed Buffalo-Springfield* 3*-axle tandem rollers in addition to a Buffalo-Springfield* 2*-axle tandem.*



Engineers have just set a weir for gaging the amount and rate of flow of sewage in the Allegheny County System. About thirty-five sewers will be gaged before the authority can recommend the type of sewerage and sewage treatment works that are needed.

Allegheny County Tackles Sewage Treatment Problem

THE NEW Allegheny County Sanitary Authority, formed to furnish sewerage and sewage treatment to the Pittsburgh, Pa., area, culminates an effort that has been under way for more than forty years. The authority will govern sewerage for a population of one and one-half million and to eighty major industries.

Pennsylvania first took action to abate stream pollution in 1905 when the legislature passed the Purity of Water Act. This act, however, was loosely framed and did not include industrial wastes, and consequently was never particularly effective. In 1937 Governor George Earle signed a stronger anti-pollution act that was strengthened further in 1944 and made more comprehensive in 1945 by measures to treat acid mine drainage. In addition, the legislature passed an act in May 1945, permitting the formation of an authority to handle problems of this nature.

The Allegheny County Sanitary Authority came into being through the action of the Board of County Commissioners who, directed by the Anti-Pollution Act, which ordered municipalities and industries to stop the discharge of untreated sewage into streams, canvassed the municipalities in the county to see how many would care to participate in a metropolitan program. Seventy-four replied favorably immediately, and others have signified a willingness since then. In March of 1946 the Authority was formed, with John F. Laboon as chairman. The rest of the governing board consisted of William B. Rodgers, treasurer; David Olbum, secretary; Cornelius D. Scully, and Charles A. Finley.

The county covers 750 square miles, and in area it is one of the largest metropolitan centers in United States. Sewage may be treated in one plant or in a number of plants, depending upon the results of a survey now in progress. A survey made in 1937 by the Works Progress Administration envisioned nineteen separate plants scattered throughout the county, but Sanitary Authority engineers feel that such a high number is unnecessary.

Studies by the newly formed Sanitary Authority include an analysis of water use as well as a check of sewage flow measurements and sewage analyses at various points throughout the county. The usage data will be available for the development of a basis for sewer service charges which will defray the cost of construction and operation of the project. Municipalities, however, are not bound to use the service charge method and can provide for financing through tax levies or other forms of fund-raising to reimburse the Authority.

A study of the 102 municipal sewerage systems, to determine the quantities and character of sewage to be expected and how these systems can best be served by the county collecting system and treatment works, is being made in detail. Some of the sewers appear improperly constructed; some have partially collapsed; many permit excessive infiltration. Agreements are being negotiated with the 102 municipalities and with many of the industries wishing to participate in the preliminary plans.

Investigations to date cover approximately thirty-five sewer outlets. The work includes not only flow measurements through weirs but also biological sampling of the sewage. These will make it possible to make field locations for certain of the interceptors and tentatively estimate design capacity.

The Authority contemplates working out a metropolitan plan of sewer rental charges which it can establish and collect. It is directed to establish "reasonable and uniform rates" subject to review by the Court of Common Pleas. The cost of services will be paid by those who have sewer connections.

These will be the only source of revenue to be used to retire bonds to be issued by the Authority. The sale of bonds will not affect the existing tax structure nor the bonding power of municipalities using Authority services.

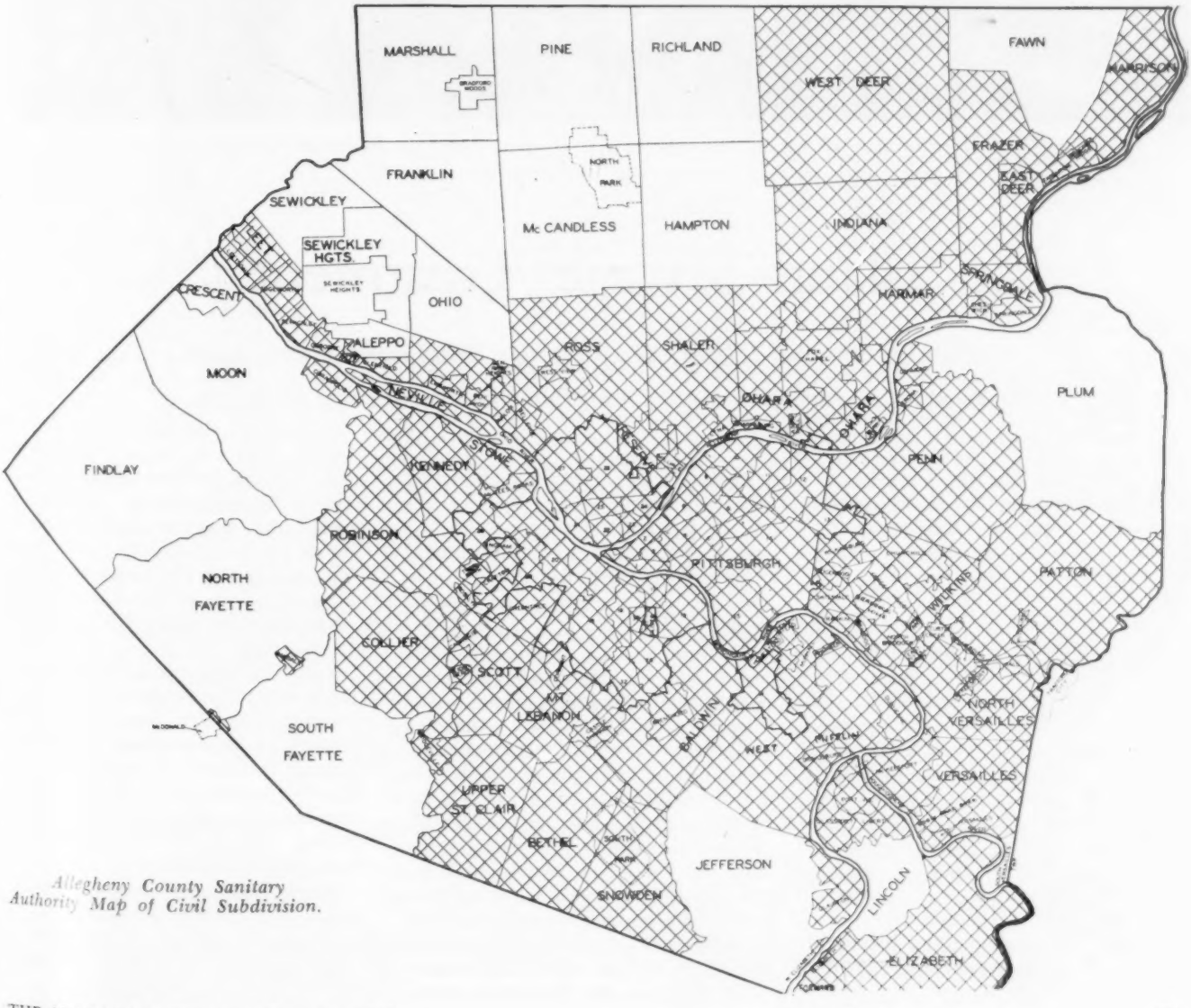
The Sanitary Authority at present has an operating fund of $500,000, which was acquired as follows: the city of Pittsburgh advanced $250,000 to be repaid out of the first revenue bonds to be issued by the Authority. The

Pittsburgh and approximately one hundred surrounding municipalities pool their facilities under the Allegheny County Sanitary Authority.

Bureau of Community Facilities of the Federal Works Agency provided a grant-in-aid of $150,000, and the State of Pennsylvania approved a grant-in-aid of $100,000. Additional funds are expected from the state in the form of grants which may be allocated to individual municipalities, particularly those that have made the Authority their agent in preparing plans and specifications. Other financial help will come from a number of industries which have signified their willingness to participate in the Sanitary Authority program. For the purpose of making preliminary studies and plans they are allocating to the Authority certain sums to pay for the cost of analytical laboratory work performed in the study of industrial wastes and for supervising the collection of data by the industries themselves.

Allegheny Board Chairman John Laboon, center, discusses some of the planning features of the Authority with William B. Rodgers, treasurer, and Gladys Swope, chief chemist.

The staff at present includes Ellis E. Bankson, managing engineer, a former consulting sanitary engineer; Miss Gladys Swope, chief chemist; Harold J. Dickman, sanitary engineer; Robert P. Lowe, sanitary engineer; and Norman S. Sprague, Robert M. Morris, and F. M. Williamson. The staff, with its assistant engineers, is carrying on the preliminary surveys and studies. Miss Swope is further assisted by five chemists who make sanitary analyses not only of sewage but of industrial wastes.



Allegheny County Sanitary Authority Map of Civil Subdivision.

Nestled away among the trees, the St. Simons Island plant has an attractive setting.

Island Sewage Treatment

The St. Simons Island, Ga., sewage treatment plant, built to meet a war need, shows simplicity and efficiency of design.

A RESORT TOWN must be attractive, as well as healthful and convenient; and an adequate system of sewers, plus an efficient sewage treatment plant, plays an important part in bringing this about. However, St. Simons Island, Ga., a well-known resort community on the South Atlantic coast, didn't get its sewers and plant until the war came along.

There was some excuse for not having a system of sewers in peacetime. Normal prewar population, including Sea Island, ran something over 3,000 in appropriate seasons. But when the war came along, the government moved some Naval training schools into the area, and the Army centered a portion of its air patrol here. Altogether, the population increased to around 10,000 permanent residents, while the war lasted.

Private septic tanks have, in the past, performed poorly due to the high ground-water table. With the added population, septic tanks failed completely because of the increase in the load and the continuous rather than seasonal use.

To care for the sewerage requirements of this wartime community, consulting engineers Weideman and Singleton of Atlanta, Ga., designed and installed 61,000 feet of collection system, using vitrified clay pipe from 8 to 18 inches in diameter. Since the land was so low and the water table so high, they found it necessary to install four pumping stations and 17,000 feet of cast iron force main from 8 to 12 inches in diameter. All four of these pumping stations are underground structures measuring roughly 15 by 30 by 20 feet deep, each equipped with two Yeomans pumps. In one station the pumps have a capacity of 150 and 220 gpm; in the second, both are of 350-gpm capacity; in the third, 550 gpm, and in the fourth, 150 gpm. All have automatic float control and are equipped with a 5-inch Sturtevant ventilating fan.

The treatment plant is simple in design and operation. It furnishes primary treatment for an estimated population of 6,000 and includes a pumping station, hand-cleaned bar screens, mechanically cleaned clarifiers, digesters with floating covers, sand drying beds, a chlorine contact tank and chlorine equipment.

There are two primary settling tanks; each of them measures 44 by 10 feet, with a capacity of 27,850 gallons. These were constructed of reinforced

(Continued on page 113)

How the Office Wheels Go Round in New York's Sanitation Department

Back of the rumble of New York's 85 sweepers, 187 snow loaders and 1,421 collection trucks is the Department's Bureau of Finance and Supply. It is the main artery through which the men receive the services, materials, and equipment used in trying to keep the city clean.

By HARRY R. LANGDON
Administrator
Bureau of Finance and Supply
Department of Sanitation
New York, N. Y.

AN EFFICIENT Bureau of Finance and Supply is the right arm of the field forces of the New York City Department of Sanitation.

The Bureau functions through seven divisions: Payrolls and New York City Employes' Retirement System, Budget and Stores, Supplies (Purchasing), Audit and Accounts, Department of Street Cleaning Pension System, Gasoline and Test Audits, Statistics and Costs.

The bureau's ultimate goal is to help the operating force. When a sweeper receives a can carrier, a can, a broom and a shovel, and possibly a can shed along his route, these implements are not supplied automatically, without thought as to whether or not they can properly perform the functions for which they were procured. Even the color scheme of the wheels on the can carrier is indicative taht consideration of safety is also part of a well-planned operating function.

Most of the 12,000 employes are paid weekly, and the rest monthly. All the payrolls, weekly as well as semi-monthly, are audited by our Division of Payrolls and then forwarded to the Central Payroll Division of the City Comptroller's Office where extensions and codes are verified and checks prepared.

Motor Vehicle Records

The Division of Stores maintains the history of every piece of rolling stock in the department. Pertinent information, such as date of acquisition, price, make, type, tonnage, is kept up to date. This unit notifies all locations when to change their motor vehicle record because of trade-in, reconversion, transfer, or condemnation of any piece of motor equipment. We had, as of March 1946, 3,151 pieces of motor vehicle equipment valued at the time of acquisition at $13,795,839. All of this equipment is coded according to the thirty-five types and makes now in operation in this department. A chart was prepared showing the code number, make, and description, together with the type of manufacture and the number of pieces of each.

In some instances, particularly in times of emergency, the Department of Purchase storehouses do not have available for issue the large quantities of items necessary for the operation of our department. For that reason, the Department of Sanitation maintains two storehouses: Pier 4, East River, and Central Motor Repair Shop. Both have proved invaluable, particularly for the preparation of disinfectants and provision of snow supplies and motor vehicle materials when urgently needed. Control is maintained by requisition, inventories, and test audits, the same as in the Department of Purchase.

I should like to mention recent experiments conducted by this division in cooperation with the operating force. One was the creation of a new type of brush for cleaning truck bodies. The brush in use for this purpose was not suitable. The most desirable brush and type of handle were decided on by the men who actually wash the trucks. Specifications covering these improved features were drawn, and the supply of brushes in the future will be of the type best suited for this work.

A second experiment had to do with eliminating insects and rodents which infested several of our locations. After trying the available disinfectants, we secured a solution that was extremely efficient in destroying the pests. Ridding the locations of insects and rodents was instituted as a health and morale builder. Disinfectant squads have been organized for continuous pest control.

This division also instigated a survey of existing fire protection facilities in our various locations. Through cooperation with the safety director, additional fire protection and fire-fighting equipment was obtained.

A survey was made by this division of the bulletin boards in all locations. A suggestion was advanced that inasmuch as these boards themselves possess attention value they should be

Office Appliances and Systems Used

The payroll work is performed by three Addressograph machines that print name and budget data, and nine seventeen-bank Burroughs bookkeeping machines. An Elliott Fisher flat-bed accounting machine makes the individual record which carries all information pertinent to the New York City retirement work, such as loans, withdrawals, etc. An Acme rotary file carries all personnel changes. Budget records of all employes by group classification—showing disbursements, appropriation, and balance to date—are kept on Flex-Site payroll cards made by Visible Records Equipment, Chicago. The Budget and Stores Division uses the Acme Visible Stores system. The Audit and Accounts Division uses visible accounting cards of the same make for the claimants' ledger, which controls all transactions with vendors. The statistical work is performed by I.B.M. electrical accounting machines as described in the article. Supplementary business machines comprise four long-carriage Underwood typewriters and twenty-seven calculating and adding machines made by Burroughs, Coxhead, Marchant, Monroe, and Victor. Forms, payroll charts, and many comprehensive departmental reports are written on a Varityper and duplicated by Multilith or Mimeograph machines.

attractively designed and painted (department colors), and placed at points where all can read them. These boards serve a useful and valuable purpose to the employes and supervisors.

Division of Supplies

The Division of Supplies acts as the liaison agent between the operating force and the Department of Purchase. Requests for non-stock material are prepared on Department of Sanitation Form #349 by the user and countersigned. Funds to permit the procurement must have been allowed in the expense budget, and a certificate to that effect is entered on Form 349 by the Division of Budget and Stores, after which the administrator of the Bureau of Finance and Supply gives final approval.

The information contained on the form is then transcribed onto a New York City Department of Purchase Requisition Form #A-35. Forms #349 and #A-35 are given a sanitation requisition number and entered into the permanent requisition ledger. The A-35 is then forwarded to the Department of Purchase and the 349 is retained in the Supply Division. If the supplies being requisitioned are electrical, the A-35 must be approved by the Department of Water Supply, Gas and Electricity before being forwarded to the Department of Purchase. If for equipment, it must be approved by the Budget Director's Office.

When the Department of Purchase issues an order, the information is entered in the requisition ledger. Thus we have a complete history of the transaction from the time the 349 was initiated until the actual ordering of the material has been accomplished. These data include the date of the 349, the advertising of bids, the contract number (if a contract), the date of the Department of Purchase order, order number, description of the material, the vendor's name, the amount of the order, and the time in days for delivery. Copies of each purchase order are furnished to us in quadruplicate, numbered 5, 9, 10, and 11. Copy #5 is the office copy and is retained as a permanent record. Copy #9 is the accounting copy and is returned to the Department of Purchase upon completion of the order to permit payment to be made to the vendor. Copy #10 goes to the initiator of the 349, and copy #11 is sent to the delivery point.

Against contract orders, at times we have a partial delivery of the materials ordered. In these cases report of quantities delivered is prepared on form 23-BS-3. This form is prepared in quadruplicate, and the first and second copies are transmitted to the vouchering division, Department of Purchase. The third copy is retained as a permanent record in the division. Copy #4 is forwarded to Budget and Stores Division for their record. This system was devised so that contractors could be paid for deliveries as made instead of waiting until the order is completed.

Provision has been made by the Department of Purchase for any emergencies that may arise in our operation through use of an Emergency Purchase Number. In utilizing this number, we are required to give evidence of having solicited three firms capable of supplying the necessary item immediately, and we are further required to make the award to the lowest bidder. After the material is procured and corresponding invoices received from the vendor, the normal procedure as to 349 and A-35 is followed. The reason for conducting the above through the Department of Purchase is that they are charged with procurement for all city departments.

Principal Motor Equipment

Ordered in 1946 were 6 crawler wagons, 30 dump trucks, 22 sweepers, amounting to over $400,000. Requested for 1947 are 150 collection trucks, 12 crawler wagons, 20 pick-up trucks, 20 sand spreaders and 60 trucks for sand spreaders, 6 tractor bulldozers, worth $1,524,000. Here are the predominating makes among the present 3,151 department vehicles.

Collection trucks:
- 521 *Autocar*
- 769 *GMC*
- 115 *White*

Flushers:
- 230 *Autocar*

Sand spreaders:
- 90 *Good Roads, Whites, and Autocars*

Snow loaders:
- 58 *Hobart with White chassis*
- 68 *Autocar*
- 61 *Sno-Go*

Sweepers:
- 35 *Guttersnipe*
- 50 *Austin-Western*

Tractor trailers:
- 583 *International Harvester*

Wreckers:
- 4 *White*
- 10 *Nelson*
- 16 *Autocar*
- 10 *Athey 40-cu.-yd. Prior to 1941, 2,968 vehicles were purchased; 139 were purchased in 1941, and 44 in 1942-44 inclusive.*

Division of Audit and Accounts

The functions of the Division of Audit and Accounts, as the name implies, are the audit of invoices and the maintenance of various accounts of the department.

Invoices for material delivered or services rendered, whether performed on an open market order or under contract, are submitted to this division in order that vouchers may be prepared and forwarded to the comptroller's office for payment. Vouchers are made out only after bills are checked as to computations, dates, guarantees, if any, and any requirements called for in the open market order or contract.

"Petty Cash" Invoices—Personal expense invoices are received here from the districts. These are submitted by employes for expenses incurred by them in the discharge of their duties that would have not been incurred otherwise, for example, carfare, meals, telephone. Each item and cost is listed and must be so segregated. A certificate of necessity is signed by the person who expended the money, and one is signed by his immediate superior. These statements are checked for accuracy, and a Miscellaneous Voucher payable to the Chief Clerk is forwarded to the Comptroller's Office for payment. There a warrant is made out in favor of the Chief Clerk, who reimburses employes submitting invoices.

Budget Control—At the beginning of each fiscal year accounts are set up from the expense budget for other than personal service. These accounts show the code number, title of code, and the amount appropriated for each. Duplicate copies of vouchers are retained in this office, and postings are made against the codes involved showing each expenditure. It is important that the balances be accurate in order not to exceed the appropriation. A budget control ledger is maintained which reflects the condition of the Personal Service Accounts. The code, line, appropriation, pro rata, title, salary, and number of positions for each title in the office are shown. Each payroll submitted to the Comptroller's Office for payment is entered on a schedule in this office and posted in the appropriation ledger.

A ledger is also maintained for Bond Fund Accounts. These accounts consist of capital budget projects, the cost of which is defrayed through the sale of corporation stock or bonds. Such improvements or projects are not included in the expense budget.

Hired Trucks—Payrolls for trucks hired for snow removal are prepared in this division. "Capacity Certificates" are forwarded to this office, upon completion in the District, on the first day

(*Continued on page 115*)

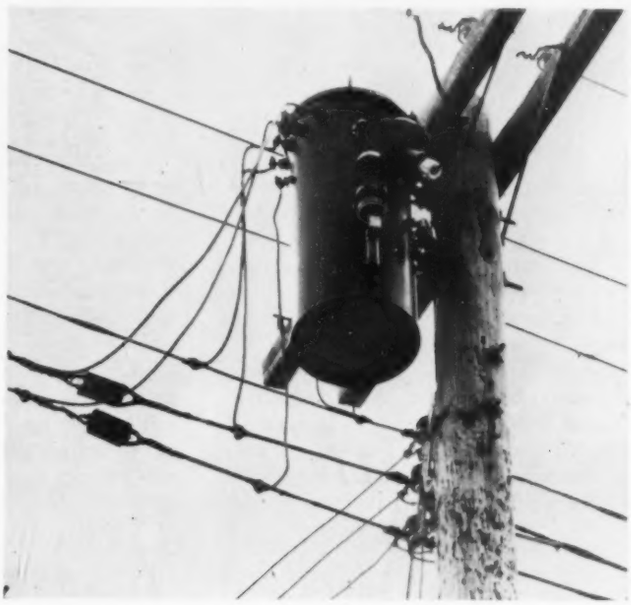
Improve Electric Distribution with Banked Secondary Service

New distribution transformers make the benefits of banked secondary service obtainable as an improvement over parallel secondary operation.

By A. D. FORBES, Transformer Division
and
JOHN S. PARSONS, Central Station Engineer
Westinghouse Electric Corporation
Sharon, Pa.

YOU can get these advantages by banking distribution transformers in your electric distribution service:

1. Reduce voltage flicker by as much as 70%.
2. Produce better average voltage conditions on the secondaries.
3. Save transformer capacity and secondary copper.
4. Produce greater flexibility for handling load growth.



This shows a completely self-protected transformer installed in a banked secondary system where secondary conductors are mounted on a rack. The secondary neutral is continuous but insulators are used in the other two secondary line wires.

The term "banking" means paralleling the secondary side of two or more transformers, all of which are connected to the same primary circuit. Experience indicates that a saving of about 5% to 35% can be made in installed transformer capacity and that secondary copper one or two sizes smaller can be used. Furthermore, these benefits are obtainable without the disadvantages heretofore associated with parallel secondary operation, as the result of the development of a completely self-protected transformer. It has been developed in ratings of 10 and 15 kva and will be extended upward to include the 25 and 37½ kva ratings.

Tying together the secondaries of a number of distribution transformers permits advantage to be taken of the greater diversity existing among a much larger group of consumers. Loads are shared by a number of adjacent transformers, and at least a two-way secondary feed is provided to consumer's service.

When banking distribution transformers, there are three types of secondary circuit arrangements which can be used. The first of these, the *line type*, requires a minimum length of secondary copper; but it does not permit the maximum utilization of the advantages to be obtained from banking. Because of the radial secondaries at the two ends of the bank, it does not reduce voltage flicker as much or provide as uniform voltage as do the loop and grid types. Greater transformer capacity may be required to prevent overloading when an end transformer is out of service.

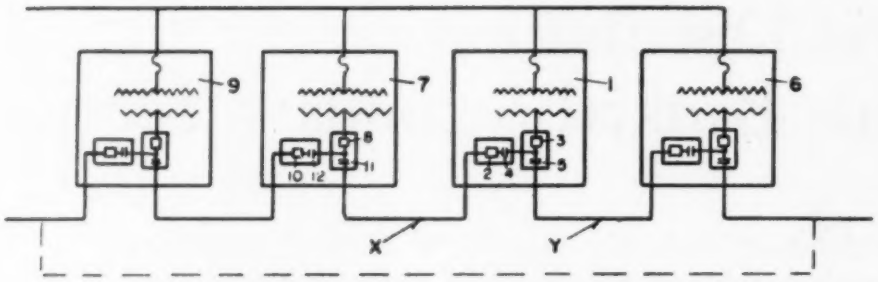
The *loop type* appears to be the most desirable form for general use. The increase in secondary copper over that required for the line type is relatively small. This form requires no more protective equipment than does the straight-line type, yet it provides the maximum service reliability obtainable with banking.

Either of these two types of banking will usually reduce voltage flicker. It can be further reduced by using the *grid type* of banking. The grid type will require about 18% more secondary copper than the loop type, depending upon the degree to which the secondaries are gridded.

Faults on the secondaries of a banked transformer installation will be relatively infrequent, and the great majority of those that do occur will be self-clearing. Not only do secondary faults tend to clear more quickly under the higher fault currents obtained when the secondaries are banked, but a greater percent of them will be self-clearing.

The number of distribution transformers connected on their secondary sides to form a bank varies from two to about 200. This depends upon the load density of the area, the type of primary circuit arrangement used, the type of banking, the protection method employed, and other factors. In general the number of transformers should be not less than three to keep the amount of installed transformer capacity down and to prevent dangerous overloading of the remaining transformer capacity when one is out of service. Various factors make it desirable to limit the transformers in a line or loop bank to about ten, and in a grid system to about twenty.

Usually all the transformers in a bank can be of the same size, and reasonably uniform loading can be obtained by properly locating them. In most cases it will be found that, owing to loads being shared among the transformers, the loading is not a particu-



A single-line diagram of a new circuit for banked secondary service that employs completely self-protected transformers with built-in circuit breakers.

larly critical problem in relation to transformer location.

The new transformer used to improve banking service has a core and coil identical to standard transformers of the same rating, but with the difference that two double-pole circuit breakers are mounted side by side on the top frame of the core. Each breaker feeds one of the two secondary circuits from the transformer.

The new circuit connection eliminates the fuses for sectionalizing a secondary circuit by means of circuit breakers built into the transformer These breakers, unlike fuses, can be coordinated with the thermal capacity of the transformers, making it possible to carry the maximum short-time overloads without risk of damage to the transformer.

A typical example of the way the transformer operates may be disclosed by observing the operation in the accompanying line drawing. Assume a fault on the secondary at point X. Fault current is then drawn from transformer 1 through bimetals 2 and 3. Since bimetal 2 is calibrated to trip at a lower current, contact 4 will open before contact 5. This opens the circuit between transformer 1 and the fault, but it leaves transformer 1 connected to section Y. When transformer 1 is not the last one of a bank, the adjacent transformer, 6 in this case, will also furnish some fault current, which will flow through bimetal 2 but will not flow through bimetal 3.

Fault current also is supplied by transformer 7 through bimetal 8. Since the fault current supplied by transformer 9 through bimetal 10 is much smaller, because of the secondary impedance between transformers 7 and 9, bimetal 8 will trip before bimetal 10. This opens contacts 11 and completes the isolation of section X.

A more complete analysis of the transformer action will disclose the following:

1. Faults are isolated under all conditions, with transformers remaining in service to feed unfaulted sections.

2. The transformer is protected under all conditions.

3. In the case of overloads the load balance and oil temperature will determine which circuit is tripped out. The one tripped usually reduces the load sufficiently so that the other does not go out of service.

The new transformer fills a real need for a unit that can be used on systems at points where load density is greater than in rural areas, but not great enough to justify the expense of underground or overhead secondary networks involving the installation of several primary feeders and network protectors.

The Engineer as a Political Force

By WALTER J. MILLARD

THE RECENT change in the outlook of local government is characterized by the importance assumed by the engineer. Most city managers are engineers; cities, counties, and states now hire more engineers than lawyers; and this is also true of most of the firms that have contractual relations with such governments. But though engineers are so numerous in the administrative side of government, lawyers greatly predominate as a political or policy-making force. As John Mills points out, however, in his recently published book, *The Engineer in Society*,* "It should not have required the atomic bomb to direct attention to the political importance of science and engineering."

The engineer in public service, as well as his counterpart in private practice and employment, will make his political weight count when he gives as close attention to his means and material—in this case human organisms and their behavior patterns—as he does when they are high-carbon steel and horsepower-hours. Mr. Mills' book serves as a guide to the engineer in such endeavors. It not only gives the scientist-engineer a vigorous push, but it applies the force effectively, for behind its eighteen chapters a mind is at work in which the same habits of thought are as unconsciously habitual as they are in those to whom the book is addressed.

The author's background is unusual. He has had a distinguished career as researcher in electronics, and he also spent several years selecting out of each new crop of undergraduates those with the potentialities needed by the great companies he served. This latter activity led to his making important contributions to the growing science of predicting human behavior.

Mr. Mills has much to say about what goes on and what ought to go on in the mind of the engineer; and in that word "mind" he includes more than "intellect." Indeed, in one of his chapters, "The Art of Thought," he recommends that worried engineers and scientific researchers "quit thinking" when they go to bed and instead that they use sleep as part of a four-step method which on its face seems mystical. Mr. Mills seems to be unaware that recent studies in neurology tend to explain his method, which, by the way, is recommended and used by many important thinkers known for their horror of occultism and mysticism. Recent neurological practices enable anyone to be as free from such tensions as the picture of Mr. Mills on the book's jacket shows him to be; for did he have such, the emotional tensions would register themselves in the face.

The fifth division, "Exposition for Engineers," is worthy of being enlarged and separately published. Every engineer in public service should be as skilled in the methods set forth as he is with his slide-rule. The book itself is the best proof of the effectiveness of those methods.

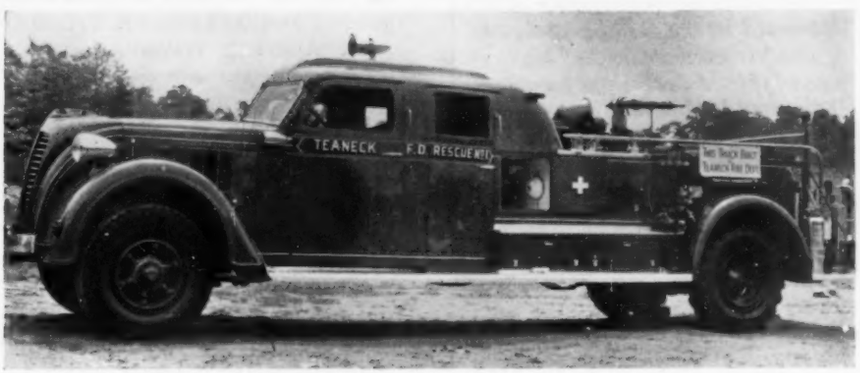
* See page 139 of this issue.

Life with Teaneck's Fire Department

UPPER RIGHT: *Four years ago the Fire Department of Teaneck, N. J., offered to spray with a boric acid and borax solution all the Christmas trees citizens wanted flame-proofed; since then, there have been no Christmas tree fires in the township. About five hundred trees are sprayed at this season.*

LOWER RIGHT: *The rescue truck is ready for any emergency—from automobile crashes and gas leaks to cats stranded in trees.*

BELOW: *Chief Murray gives instructions to two young ladies who served as fire alarm operators during the war.*



By FRANCIS A. MURRAY
Fire Chief
Teaneck, N. J.

BEFORE the war we made a moving picture of a typical day in the Teaneck, N. J., fire department. Of course, it wasn't the slowest day we ever experienced, nor the liveliest. I think the liveliest began at 11 p. m. on October 14, 1945, when a 24-inch low-pressure water main broke at the New Milford pumping station, depriving Teaneck and twenty other communities of water for twelve hours.

The water famine called for immediate action. All members of the department were summoned to duty. Calls were made at all the larger establishments to see that fires were pulled on hot water systems. Jersey City sent a pumping engine carrying 400 gallons of water. Union City sent an 1,800-gallon tank truck. A citizen supplied a 6,800-gallon fuel oil truck filled with water.

Thus we had a mobile water reserve of 9,000 gallons, or enough to supply our four pumping engines for nearly four minutes. Fortunately, we didn't have to try it out.

Our apparatus comprises three American LaFrance pumpers of 1,000, 750, and 700 gallons, a city service truck carrying a 350-gallon pump, a 75-foot ALF aerial on a White tractor, hose wagon, fire alarm service truck, and a Mack rescue truck. These are distributed among three fire stations located 1½ miles apart. Indian fire pumps are carried on all apparatus, and we have ordered twelve more of these effective backpack pumps. Also on order are a new pumping engine and an 85-foot aerial truck.

Prior to 1946 the department was connected to the police radio, but early this year we installed a two-way Link system for the exclusive use of the fire department. The Chief's car and the rescue wagon have two-way equipment. This extra electrical load necessitated our finding a heavy-duty battery that could take it. Two years ago we installed Hand storage batteries and since then have come to use this battery on all our vehicles, checking them twice a week.

Handling Fire Alarms

Teaneck is served by two telephone exchanges. We have two telephones at headquarters so that either exchange can call us direct, and these are used exclusively for fire alarms. On the streets there are forty-eight fire alarm boxes. Each type of fire has a

different signal: "three" is for accidents needing only the rescue wagon; "four" is brush or automobile fires; "five" is a fire in a dwelling; "six" is for an apartment house; "seven" a school; "eight" a hospital; "nine", a building of public assembly. On receipt of an alarm, the operator transmits over our interdepartmental private telephone system the type of fire, the address, and the nearest intersection. He repeats this and places the alarm on the fire alarm telegraph system. The Monotype telephone switchboard of the Automatic Electric Company connects with the other two fire houses and the Chief's office and home. For two-alarm fires, a whistle on the drill tower is blown.

In 1945 there were 121 building fires, 179 brush or grass, 162 rescue cases, and 13 false alarms. Three hundred forty came by phone and nineteen by box. There were five second-alarms, and the off-platoon was called six times. Per 1,000 population there were 4.32 fires; per 1,000 buildings, 10.08 fires. The average loss per building was $229.60; the per capita loss was 99 cents. A full-time inspector made 905 inspections and found 229 violations.

The type of service rendered by the rescue truck is indicated by the principal calls. Thirty-six were for automobile crashes; twenty-two for broken water pipes, eighteen for refrigerator leaks; and eleven each for gas leaks, citizens locked out, and cats in trees. Eight were cases calling for use of our two MSA H-H inhalators.

We hold a fire college in winter to which the firemen of nearby communities are invited, so that they will be acquainted with our work, should they be called in to aid us. A drill school is conducted in the warmer months. All repairs are made in our own shop. We have forty men, a chief, and an assistant chief, with a captain and lieutenant at each of the three stations.

Omaha's Typhoid Record

The Omaha, Nebr., Health Department reports that through an error made in the Department's retabulation, Omaha was listed in the Typhoid Honor Roll compiled by The Journal of the American Medical Association and printed in the October issue of The American City ***as having 0.4 typhoid deaths per hundred thousand population. Actually, no death at all occurred from typhoid in Omaha during 1945.***

Model Ordinance Aids Veterans' Housing

MUNICIPAL officials should do their part in supporting the drive against illegal and unauthorized construction—making certain that war veterans receive housing priorities. One effective way to do this is to adopt a "model ordinance" recently prepared by the National Housing Agency. This ordinance is based on laws already in effect in several cities and requires that a builder have a construction authorization from a federal agency before he can obtain a local building permit.

Posters calling attention to the necessity of obtaining federal approval are being distributed to Mayor's Emergency Housing Committees for display in offices of building inspectors and in other places where they would be seen by prospective builders. Copies of the two-page model ordinance may be obtained from the Office of the Administrator, National Housing Agency, Washington 25, D. C.

Educational Program Urged for Prisons by President of the American Prison Association

URGING a more enlightened approach to problems of prison management, Sam A. Lewisohn, President of the American Prison Association, stated in a recent address that educational programs should be emphasized and act as the theme of all other activities in prisons.*

"A well-established educational program should serve to make everybody in the institution realize that his function is not merely to detain the prisoner in a human warehouse," he said, "but rather to turn out better human material. It serves to emphasize the treatment of the prisoner as an individual—a human being—and not as a symbol."

To Curb Juvenile Delinquency

Recommendations for helping to curb juvenile delinquency, a problem being faced by many municipal officials, were given as follows:

"There should be a psychiatrist in every school if at all possible. For it is axiomatic that little indiscretions on the part of youngsters are sometimes symptomatic of deep-rooted difficulties. By getting at the root of these difficulties, in time, trouble in later years can be avoided.

"It must also be realized that too frequently so-called problem children come from problem parents. It would not be amiss, therefore, if every community formulated some plan whereby parents could be made more cognizant of their obligations. . . .

"Then too, communities must offer more attractive recreation facilities, and be constantly on the alert to formulate programs that will cope with specific problems. One outstanding contribution of this nature is the proposal for the transmutation of the gang into a constructive group. . . . Another outstanding illustration of such alertness is the Youth Counsel Bureau in New York City, which, with the cooperation of the District Attorney of each borough, attempts to remold delinquent youths who manage to avoid conviction. . . .

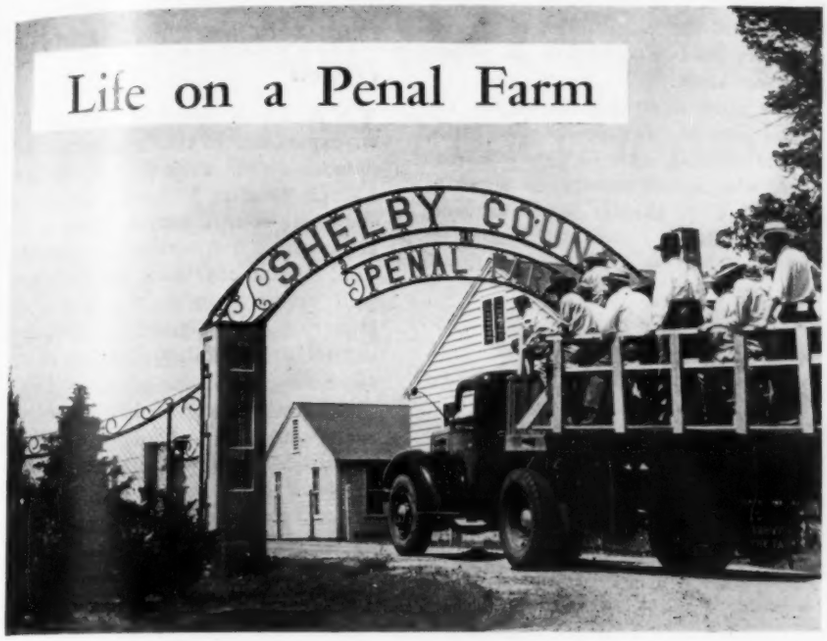
More for Probation—Less for Prisons

"Communities should also see to it that more adequate probation facilities are provided. Offenders should be sent to prison only as a last resort. And if they *are* sent, they should be paroled under proper supervision. Mistakenly, the public still thinks of parole as *leniency* instead of as supervision. It is not conscious of the fact that even from elemental considerations of its own self-protection, a shorter term within prison for an offender, with careful supervision on release, is safer than were he given a long term and returned to the community without any control or guidance. . . . In fact, I would say that *increased* budgets for probation and parole will eventually mean *decreased* budgets for prisons.

"I have great faith in the people of America when given the facts. They know that health is not contagious, but disease is. Placing most offenders in institutions where they are subject to the virus of other offenders can accomplish little good. Placing them in a healthy community, among people who can stimulate them to do healthy things, is a much better method."

* See page 141 for a listing of the recently issued *Manual of Suggested Standards for a State Correctional System.*

Life on a Penal Farm



Ross L. Holman tells how a penal farm near Memphis, Tenn., directs the way toward enlightened treatment of prisoners.

FOR those believing that prisoners in Southern states are generally condemned to chain-gangs, news of the highly-rated Shelby County Penal Farm, near the city of Memphis, Tenn., may prove a surprise. Its record of efficiency and its rehabilitation program for prisoners should be an eye-opener to municipalities content to allow their penal systems to operate wastefully, with insanitary, degenerating conditions and unenlightened forms of management.

The story of the Shelby County Penal Farm began in 1928 when the county government, under the leadership of Commissioner E. W. Hale, purchased 1,400 acres of badly-eroded, useless farmland about six miles from Memphis. With the cooperation of city officials in Memphis, which forms the largest part of Shelby County both in population and area, a highly successful penal system has since been developed.

Although the farm is a county institution, it does accept all city prisoners. The prisoner population is made up of city prisoners working out fines for misdemeanors; county prisoners with sentences up to one year; state prisoners with sentences to five years or multiples of five years; federal women prisoners with all terms, and men prisoners with ninety days or less.

Largely through the work of convicts and competent farm managers, the farm has grown to five thousand acres, which now produce an average of seventy-five bushels of corn per acre. In addition, it supports a 100-cow purebred dairy herd; sells seventy-five head of beef cattle and $10,000 worth of hogs per month; butchers 115 head of cattle and about 500 hogs yearly; and produces 93% of the food consumed by its five hundred prisoners and managing personnel, as well as providing much food for other county and city institutions through its own mills, bakeries, and canneries. An especially good source of revenue is a plant which processes all the carcasses of dead animals that were killed on highways or died on county farms. This plant alone last year made a profit of $44,453 reducing these animal remains into fertilizer and soap. Last year, all in all, the farm fed, clothed, doctored, and trained all its convicts, paid salaries of its managing personnel, provided food for other county institutions, and returned a profit to taxpayers, over and above these costs of $143,702.

Human Dividends

Of more importance than the financial returns, however, is the Shelby County Penal Farm's emphasis on rehabilitation of prisoners. All the work on the farm, aside from supervision and the more technical jobs, is done by convicts who are working out their sentences.

When a prisoner is assigned to the farm, he is interviewed in order to gather information about his home, school, work, criminal, and physical background. The farm supervisors fit prisoners into jobs adapted to their talents, but they also write to former employers, relatives, and acquaintances of each prisoner asking about his habits, peculiarities, and things that might have led to his entanglement with the law. While no prisoner is allowed to forget that he is a prisoner and is paying his debt to society, he is humanely treated and made to understand that the penal farm management is trying to send him back a useful citizen to the society against which he has transgressed. Notable success has been achieved with many individuals.

Some of the prisoners learn dairy husbandry and breeding by helping with the cows. Others learn skilled trades through working in the food processing industries and the machine shops, which repair farm machinery and manufacture many implements outright. A laundry services the prisoners' clothes. The convicts built the dehydrating plant where some of the food is processed. They have erected dozens of buildings with lumber sawed from the farm's seven hundred wooded acres. They also make metal bodies for trucks used by the county and office furniture for the farm and county offices.

Cultural Program

In addition to this job-training, the convicts have wholesome educational movies, radios, games, a library, and instruction facilities. Plans are being made for expanded educational, recreational, and religious programs.

A night school operating two nights a week has just been started. It is under the direction of Richard C. Jones, former president of Memphis State College. The program's objectives are to teach reading, writing, and arithmetic, as well as to direct study along specialized lines correlating with the program. For example, a man learning to be a welder will be furnished books and material relating to welding.

Federal inspectors rate the farm highly, reporting that it is clean, sanitary, and that the inmates are served adequate wholesome food. In fact, the U. S. Government is now sending all its federal prisoners from the Memphis area to the Shelby County Penal

Farm to serve out their terms. It pays the farm $1.00 a day for handling each of its convicts in addition to allowing the farm the full use of his labor. The State of Tennessee is also enough pleased with the set-up to send its own convicted criminals from Shelby County to the same farm.

Other sections of the country may well look to this Southern model for its demonstrations of human conservation and the possibilities of greater efficiency and imagination in prison administration.

The men deserving credit for the farm's record include O. B. Mills, county commissioner in charge of the farm, who is also warden, or superintendent; T. E. Hooker, farm manager; Wallace Bryan, live-stock manager; and R. C. Jones, who is educational director.

Jail Standards

Suggested by the Federal Bureau of Prisons

For municipal officials interested in evaluating penal institutions within their jurisdictions, a list of jail standards follows that was prepared by James V. Bennett, Director, Federal Bureau of Prisons, U. S. Department of Justice.

1. A jail should be under the direct management and control of a person qualified by training and experience to supervise and control prisoners. As many persons as are necessary to provide constant supervision over the prisoners should be employed and be under authority of the head official. Salaries should be sufficient to attract persons of high caliber.

2. Jail officials should have a set of policies and regulations for the operation of the jail, for the employes, and for the inmates.

3. The building should be structurally sound, secure, fire-resistant, and properly heated, ventilated, and lighted. (Vermin breed in dark corners.) Windows should be screened. There should be a good locking system and the devices should be in operating order.

4. All parts of the jail should be kept immaculately clean.

5. Kangaroo courts or similar inmate organizations should be prohibited. No prisoner should be allowed to have authority over any other prisoners. Employes should fulfill their own responsibilities and not turn them over to prisoners any more than a hospital superintendent turns over his responsibilities to the patients.

6. Brutal treatment by employes or prisoners should be prohibited. No prisoner should be permitted special privileges. Trusties, so called, should be under the supervision of employes.

7. A competent physician should be available to take care of the medical needs of the prisoners, and to give each prisoner a medical examination upon admittance to the jail.

8. Juveniles should not be held in jails, but if committed should be definitely segregated and well supervised.

9. Prisoners with contagious diseases, hardened criminals, and the sexes should be segregated.

10. Women prisoners should be under the supervision of a matron at all times. No male employee should have keys to the women's quarters or be permitted to go there unless accompanied by a matron. Male prisoners should never be permitted to go to the women's quarters to bring food or for any other purpose.

11. Prisoners should be fed three times each day. The food should have the proper nutritive value and be prepared and served in a wholesome and palatable way. The eating utensils should be returned to the kitchen and washed with soap and scalding water after each meal.

12. Adequate bathing and toilet facilities should be available, and water, soap, towels, and tooth brushes should be supplied to prisoners. These are essential to the health of any human being—prisoners not excepted.

13. Convicted prisoners should be kept employed. An ingenious jail official can find many ways to occupy the prisoners working for the state or city or county, without interfering with private industry or free labor. They can work on salvaging government property; repair autos, trucks and other items; paint bridges; some of them can work on the highways under proper supervision, and perform other useful jobs. They should also be required to keep their own quarters and other sections of the jail clean. This work should be done under the supervision of an employe. Prisoners who have not been convicted should be given the opportunity to work within the jail confines if they care to do so. Useful occupation stimulates self-respect; idleness breeds trouble and usually leads to more crime.

14. There should be good reading material available. Outdoor exercise should be required, and provisions made for education and religious instruction.

15. Prisoners' legal rights should be protected and they should be given every reasonable opportunity to confer with their attorneys, but the jail officials should see that they are not fleeced or exploited by unscrupulous persons.

16. Regular visiting by the family and friends of the prisoners should be permitted under reasonable conditions and under supervision.

Non-speculative Housing Urged

IN A TALK based on his successful experience in the development and operation of Pittsburgh's Chatham Village, Charles F. Lewis, Director of the Buhl Foundation, speaking at the recent annual American Life Convention, urged insurance companies to join public agencies in applying the principles and methods of investment capital to the future building of our cities.

"Now that America has reached maturity and is concerned with problems of intensive rather than extensive growth," said Dr. Lewis, "it would seem that capital is frankly challenged to recognize the investment possibilities of neighborhood building. Investigation should convince serious-minded capital of three things:

"First, speculative motives have dominated housing too greatly heretofore, and secure housing is impossible if either the builder or the buyer is gambling with the property. Second, one way to achieve protection for urban residential neighborhoods is to build it into them—to build neighborhoods as large-scale planned communities from the ground up in one operation, designed to be owned and managed over a term of years on a sound, income-producing, rental basis. Third, neighborhoods so built, properly maintained, and intelligently managed, offer an attractive medium for the secure investment of funds with a safeguarded, adequate return.

"The building and management of such enterprises should be particularly and increasingly attractive to the great insurance companies of America. . . .

"The building of more economically productive, tax-paying districts is sorely needed by almost every great American city. If our cities are to regain economic and social health, they must encourage new building not only for those families who cannot pay their way; they must aggressively and intelligently encourage building for those families who can pay their way. Here is an objective that properly should claim the cooperation of labor to the end that wastes in construction processes be eliminated. It may confidently be believed that it will claim the cooperation of capital—and particularly of the public-spirited managements of insurance companies—as regulatory and other barriers are removed.

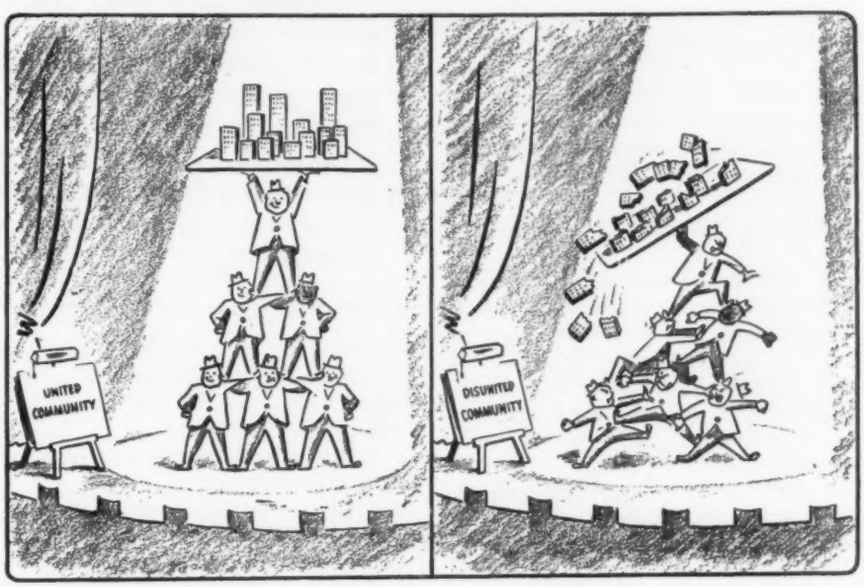
"In other words, let the government and private capital actually apply the principles and methods of capitalism to the future building of our cities."

Planning for Unity in Community Redevelopment

Excerpts from one of the "Talk It Over" Pamphlets of the National Institute of Social Relations

BETTER physical facilities alone will not produce better neighborhoods, better communities. We must plan for better living-together within the framework of these facilities. *Social planning* is required, in which all shall take part. The heart of this planning should concern the relations between the different racial, religious, and nationality-background groups within the neighborhood and the community. Conflict, prejudice, misunderstandings, unequal opportunities for education and housing and jobs, and many other factors combine to undermine the social health of our communities. The future of a city is not only threatened by its physical "rotten core" of slums and blight—it is also threatened by the rotten social core of antagonisms between various groups in the population—antagonisms intensified by twelve years of un-American propaganda emanating from Rome, Berlin and Tokyo. We cannot pretend that this rotten social core does not exist to a greater or less degree in every American community.

"LET'S KEEP THE ACT TOGETHER . . ."



Social as Well as Physical Planning Needed

Social planning for better inter-group relations has to tie up closely with the physical planning of the city and the neighborhood. Residential segregation results in minority groups living under uniformly bad conditions. They are poorly housed, overcrowded, overcharged for their accommodations. All this causes neighborhood standards to go down, resulting in blight which threatens to spread to surrounding neighborhoods. Segregation reduces the normal contacts between groups, leading to *more* rather than *less* friction. We are far more likely to develop prejudices and hate against people we don't know than against people with whom we have close contacts. Real "neighborliness" leads to real understanding.

The bad social effects of segregation are summed up as follows by Dr. Robert C. Weaver of the American Council on Race Relations, "Hemmed-in people are frustrated people. Those who restrict them soon become frightened, insecure people forced to accept and invent prejudices to justify their actions. Community development is delayed and complicated because it conflicts with segregated patterns of living. Groups in the population become increasingly suspicious of each other. Democratic America suffers from internal weakness and international loss of prestige."

Organize for Unity

Just as physical planning requires the participation of all citizens in an organized way, so does social planning for better inter-group relations. Communities all over the country are establishing "Unity Councils" or "Race Relations Councils" to do this kind of planning and to develop action-programs. Civic leaders are agreed that every community needs such an organization. Once it is established and has gathered facts on the actual inter-group situation within the community, it should set out to achieve certain concrete objectives. The following are typical objectives to be sought:

1. Equality of work opportunities for members of all racial, religious, and nationality groups; an end to job discrimination whether practiced by employers or labor unions.

2. Decent housing for all, irrespective of race, color, or creed. Abolition of racial-restrictive housing covenants. Breaking down the invisible—but very real—walls of American ghettos. Equal municipal services—police, fire, sanitary, street—to minority group neighborhoods.

3. Equal educational opportunities for all on a *non-segregated* basis; teaching jobs for members of minority groups.

4. Equal health facilities—hospitals, clinics, etc.—for all members of the community.

5. Equality for all before the law; equal political rights; equal privileges of citizenship.

6. Equal access for all to parks, playgrounds, libraries, and other public facilities.

7. An end to segregation in the churches.

8. Admission of members of minority groups to shops, restaurants, and theatres without discrimination and on complete equality.

St. Louis Studies Waste Collection

Condensation of Report by the Mayor's Committee

St. Louis is in the process of enlarging its refuse collection service from that of merely collecting garbage to the collection and disposal of all municipal wastes. To assist in this work, Mayor A. P. Kaufman appointed a committee to report and recommend action. The committee consisted of Arthur C. Meyers, Chairman, Director of Streets and Sewers; Henry W. Dawson, Street Commissioner; Milton M. Kinsey, President, Board of Public Service; Orville A. Armstrong, Alderman; Ernest H. Paffrath, Sewer Commissioner; Ray C. Schroeder, Deputy Comptroller; Charles G. Kratovil, Alderman; and Charles F. Hamilton, Assistant City Counselor.

THE COMMITTEE obtained first-hand knowledge of the collection and disposal of garbage, rubbish, and ashes by visiting Milwaukee, Wis.; Cleveland, Ohio; Pittsburgh, Pa.; Baltimore, Md.; Washington, D. C.; and Cincinnati, Ohio.

The committee was impressed by the fact that merely establishing a rubbish and ash collection system, without proper enforcement of ordinances and regulations and without the cooperation of the citizens, does not result in a clean and sanitary city.

Garbage Collection and Disposal

The collection and disposal of garbage presents no problem to St. Louis. This activity has been organized to permit three collections a week, and the garbage is disposed of (1) by grinding and (2) by sale to farmers for hog feeding. St. Louis has two grinding plants.

Public officials in the cities visited were unanimous in their opinion that the St. Louis method of collection and disposal of garbage excelled their own. The St. Louis method of disposal has the advantages of being economical and sanitary, and it completely removes the garbage from the city limits.

The committee, therefore, recommends that the present method of collecting and disposing of garbage be continued.

Rubbish and Ash Disposal

Combustible rubbish presents a most difficult problem because it is bulky and requires truck bodies of large capacities; and, if not properly prepared, it is difficult for collectors to handle and can cause an unsightly nuisance. In addition, the volume and nature of the material is such that if the land-fill method were used, large areas of land would be needed.

In St. Louis, because of the smoke ordinance, it would be impossible to dispose of combustible rubbish by burning it on an open dump. Using it for land-fill would also present a problem should it ever become ignited.

One of the committee members visited the sanitary fill operated at Rockford, Ill., bringing back the information that Dr. N. O. Gunderson, commissioner of health for that city, is definitely in favor of it. City Engineer William H. Day, on the other hand, is not satisfied and is urging incineration. He lists the following as some of the difficulties:

1. It is a nuisance if located in proximity to residences.
2. In wet weather operating problems are greatly multiplied.
3. Frozen ground in cold weather is a difficulty.
4. There is the possibility of seasonal settlement of the fill.
5. Sites cannot be chosen to minimize hauling.
6. Available sites are not numerous, and landfills use up ground quickly.
7. Sites are further limited by the fact that a good "cover" must be available.
8. Too large a volume of refuse cannot be dumped at one fill with efficiency of operation; hence large cities need a number of fills operating simultaneously.
9. The public takes advantage of sanitary fills by dumping odds and ends there indiscriminately.

The committee, therefore, recommends that the combustible rubbish be disposed of in two incinerators. The committee further recommends that if the incinerators are not completed by the time the collection organization is ready, the land-fill method be utilized pending completion of the incinerators.

Separation of Refuse

In view of the methods of disposal, it is necessary that three separations be made. Garbage should be placed in water-tight containers with a tight cover and collected three times a week. Combustible rubbish should be in a separate container and collected at least once a week. Ashes and non-combustible rubbish should be placed in a separate container and collected once a week during the heating season and probably once every two weeks during the non-heating season.

Enforcement and Education

It is the opinion of the committee that no plan of collection will be completely effective unless each individual makes up his mind that he must do his part. The committee is further convinced that in addition to strict enforcement a campaign of public education should be a year-round undertaking.

The committee therefore recommends strict enforcement of ordinances and regulations covering collection and disposal of refuse. It further recommends the establishment of a year-round educational program along the lines of the annual clean-up campaign.

Containers and Truck Bodies

In no city visited did the committee find containers supplied by the municipality. In all cases, the individual is required to prepare refuse, place it in containers, or bundle it in accordance with regulations.

The committee feels that its garbage collection trucks are satisfactory and that the closed type of body should be used for the collection of ashes and non-combustible rubbish.

The committee therefore recommends that containers be furnished by the individual. It also recommends the use of closed bodies of 15-cubic-yard capacity for the collection of combustible and non-combustible rubbish.

Financing

None of the cities visited used the service-charge method of obtaining revenue for collecting garbage, rubbish, or ashes; and none of the officials recommended it for larger cities. If it were used as a flat charge against the property owner, it would be necessary to establish in advance the extent of service required and to maintain a classification of each property. If the charge is against the householder instead of the property owner, difficulties would be increased, since if the householder refuses to pay, it will still be necessary to collect refuse.

The committee therefore recommends that the collection and disposal of rubbish be budgeted annually and services be financed from the general revenue.

The establishment of a collection and disposal service would entail the following capital investments:

Trucks with 15-cu. yd. bodies and other equipment	$ 995,000
2 garages equipped for 80 trucks each	600,000
2 500-ton incinerators	2,000,000
2 bulldozers for the fill areas	15,500
Maintenance shop equipment	25,000
	$3,635,500

This estimate is based on present construction; it does not include the cost of real estate for dumps or building sites.

To provide a satisfactory collection service for ashes and rubbish, the following expenses would have to be met annually:

Payroll	
General Supervision	$ 26,532
General Office	12,084
Maintenance Shop	96,396
Collection	922,680
District Garages and Offices	72,792
Incinerators	92,808
Fill Areas	19,520
Supplies	
Gas and Oil	50,000
Repair parts and miscellaneous	110,000
	$1,402,812

	BALTIMORE	PITTSBURGH	CLEVELAND	WASHINGTON	CINCINNATI	MILWAUKEE
Population	930,000	671,659	900,000	941,000	455,610	602,000
Area—Sq. Miles	78.72	54.29	72.5	70	73	44
Rubbish Collection	Weekly	Weekly	Monthly	Weekly	May to Nov. twice weekly Nov. to May once weekly	Monthly
Number of Trucks	55	96	50	45	76	100
Number of Crews	55	96	50	45	71	135
Number of Men in Crews	6	3 to 4	5	4	4	5
Ashes Collection	Twice weekly	None	Monthly	Weekly	Nov. to May weekly May to Nov. every 2 weeks	Monthly
Number of Trucks	60	None	50	8 to 26	With rubbish	With rubbish
Number of Crews	60	None	50	8 to 26	With rubbish	With rubbish
Number of Men in Crew	5	None	5	3	With rubbish	With rubbish
Garbage Collection	Twice weekly	With rubbish	Weekly	Twice weekly	With rubbish	Weekly
Number of Trucks	39	With rubbish	50	32	With rubbish	16
Number of Crews	39	With rubbish	50	32	With rubbish	49
Number of Men in Crew	5	With rubbish	5	3	With rubbish	3
Rate of Pay for Labor	.86 per hr.	.95 per hr.	.92½ per hr.	.68 to .76 per hr.	.76½ per hr.	1.03 per hr.
Number of Routes	Garbage—113 Rubbish—331 Ashes—127	3 Districts	20 Districts, 80 Routes	Not available	10 Districts	Rubbish—27 routes Garbage—49 routes
Truck Body Capacity	2 yds. to 13 yds.	15 to 20 cu. yds.	9 to 13 cu. yds.	8 to 16½ cu. yds.	8 cu. yds.	3 to 20 cu. yds.
Make of Bodies	Garbage—enclosed Rubbish and ash—open	Enclosed and open	Open and closed	Own design	.....	Various
Annual Appropriation	$1,815,500.00	$1,622,355.00	$1,500,000.00	$1,624,768.00	$643,112.47	$1,973,544.00
Other Financing	None	None	None	None	None	None
Salvage Reclamation	None	Tin can and scrap metal	None	Metal	None	None
Maintenance of Equipment	Central shop	One shop	.....	One shop	Central shop	4 locations
Garaging of Equipment	3 garages	One garage	.....	3 garages	3 garages	6 locations
District Supervision		3 supervisors & 14 foremen	District foreman	Supts. and foremen	District foreman	Dist. Supervisors and foremen
Garbage Disposal	Landfill and incineration	Incineration	Incineration	Hog feeding	Incineration	Incineration
Combustible Disposal	Landfill and incineration	Incineration	Incineration	Incineration	Incineration	Landfill
Non-combustible Disposal	Dump and landfill	None	Dump and landfill	Landfill	Dumps	Landfill
Ash Disposal	Dumps	Dumps	Dumps	Landfill	Dumps	Landfill
Reclamation of Property	Solid materials only	None	Lake front and low ground	Solid materials only	None	Landfill
Original Cost of Equipment	Not available	$323,921.00	$400,000.00	.....	$348,630.00	Not available
Original Cost of Incinerators	Not available	$951,956.00	$900,000.00	$517,800.00	$385,500.00	$437,000.00
Original Cost—Garage Facilities	Not available	With rubbish	Not available	$250,000.00	Included above	Not available
Original Cost Maintenance Shops	Not available	$104,155.00	Not available	$1,200,000.00	Not available	Not available
		Note: North Side Area—140,405 Pop. Collected by Contract				

This summary of five cities' refuse disposal practices is part of the study described in the foregoing article made by St. Louis.

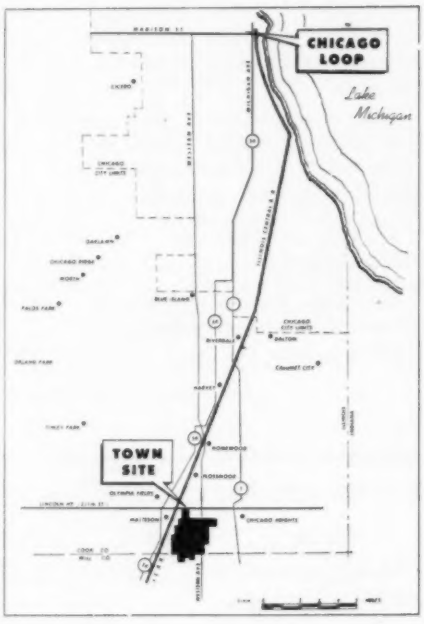
New Town Planned Near Chicago

A NEW $70,000,000 town planned from the ground up for a population of 25,000 is soon to be constructed on 2,300 acres of rolling land near Olympia Fields, Ill., twenty-five miles south of Chicago, by the American Community Builders, Inc., headed by Philip M. Klutznick, former commissioner of the Federal Public Housing Authority. The project will be financed by the Federal Housing Administration.

According to Mr. Klutznick, the latest principles of modern planning will be employed to produce an integrated community of homes, shopping centers, schools, recreational facilities, and non-nuisance industries. These will be bound together by a safe and well-planned road system, adequate public transportation, and an economical, efficient utility system.

The town will be divided into five contiguous residential neighborhoods, centered around five elementary schools. A high school is part of the plan, and sites have also been reserved for churches of various denominations. Recreation facilities will include a central park, bowling alleys, a golf club, theatres, playgrounds, a swimming pool, and picnic spots in the nearby State Forest Preserve. All municipal agencies will be housed in a town hall.

The main and secondary shopping districts will be integrated so that excessive duplication of commercial facilities and sprawling, inconvenient business sections will be avoided. All of the commercial buildings are to be constructed by the American Community Builders in an architectural plan emphasizing easy parking and a minimum amount of walking. About 475 acres will constitute the industrial area. However, only non-nuisance industries will be considered in the sale or lease of this land.



Site for the new town near Chicago.

Present plans call for houses selling from $7,000 to $10,000. However, there will be provision made for 600 rental units. Initial construction will begin in the spring, with the firm of Harrison, Ballard and Allen of New York City retained to organize and administer it. Elbert Peets of Washington, D. C., who collaborated in the planning of Kohler and Greendale, Wis., designed the basic plan for the community in conjunction with Loebl and Schlossman, Architects, Chicago.

Faribault, Minn., Program Includes Streets, Lighting, Airport, Sewerage

AFTER TWO YEARS of accumulating materials, Faribault will be ready to award a contract for repaving over 40,000 yards of business streets and highways with concrete. The work involves re-laying over two hundred sewer, water, and gas services and additional storm-sewer mains and connections. It will cover additional widths of roadway to accommodate traffic from a new trunk highway.

The city also has just received a preliminary report and estimate for a new disposal plant at a cost of $562,000, including a lagoon of 25,000,000-gallon capacity for impounding canning wastes.

The city has started on the construction of a Class III airport and is now installing the drainage for the first stage of construction. Because of the probability of securing federal funds later, only a portion of the drainage is being installed now, and bids are being asked on construction of two 2,400-foot temporary grass runways with an administration area.

A contract has been signed for the installation of a modern ornamental lighting system in the business area and complete reconstruction of the overhead system in the residential area at a total cost of $35,000.

Fire equipment under contract will require an expenditure of $17,000, and plans call for a new station at an estimated cost of $150,000.

The water department has purchased sufficient 18-inch cast iron pipe for clearance in the paving district and has under contract sufficient 18- and 20-inch pipe for the river crossing, which, together with small mains and fittings, aggregate $12,000.

Woman Replanning City

MISS ROSETTE EDMUNDS has been appointed to replan the city of Sydney, Australia. She has been commissioned by the Cumberland County Council to prepare a master plan that will include the demolition of the city's slum areas.

"Town planning, she says, "is largely a restatement of the fact that cities are for the people, not people for the cities. It is unthinkable that a great majority of all persons on low incomes should be forced, whether they like it or not, to live under conditions and in areas where they have no opportunity for maintaining dignity and self-respect."

Condensed from *The New York Times.*

Referral Centers Urged For Veterans

MAYOR'S Emergency Housing Committees throughout the country are given many practical suggestions on how to organize and operate Veterans Housing Referral Centers in The Community Action Bulletin No. 6, distributed by the National Housing Agency.*

These centers will provide one central place in the community where (1) all information will be available on current vacant dwelling units by location, size, type, price, and condition; (2) all veterans may obtain preference and coordinated service for their housing needs; and (3) campaigns may be directed towards encouraging home sharing and utilization as dwellings of structures not normally used as such. The suggestion is made for inclusion of the local housing authority — which manages war projects and locally owned low-rent projects—on the committee set up to direct the center in the individual community.

* The other bulletins, each devoted to a particular problem and outlining how the Mayor's Emergency Housing Committees can attack it, include the following titles: "Community Goals for Emergency Housing," "Building Sites for Veterans Housing," "Labor Supply for Veterans Housing," "Building Code Suggestions for VEHP," and "Conversions Provide Homes Faster."

Neighborhood Memorial Recreation Center for Coatesville

By JAMES DAHIR

A WORLD WAR II Memorial Recreation Center is to be built in Coatesville, Pa., (home of the world's largest plate steel rolling mill), and its activities are to be integrated with the Adams Community School program which has been developing for the past twenty years.

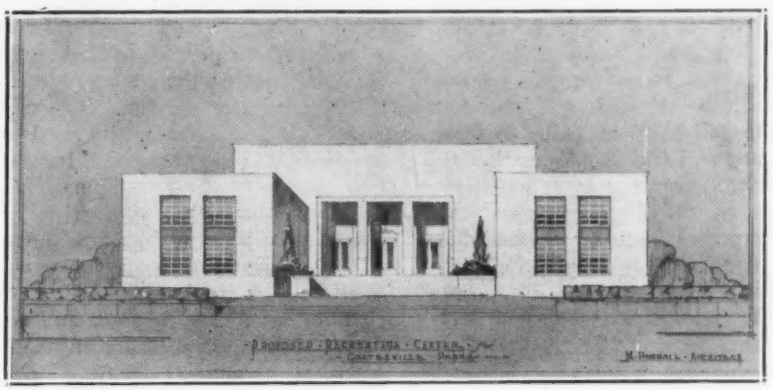
A citizens' committee known as World War II Memorial Center, Inc., raised a total of $55,000 through individual subscriptions, of which over $28,000 has already been paid. The city appropriated $15,000 to build an outdoor swimming pool adjacent to the community center building and has made available the land on which the building, swimming pool, and playgrounds are to be located.

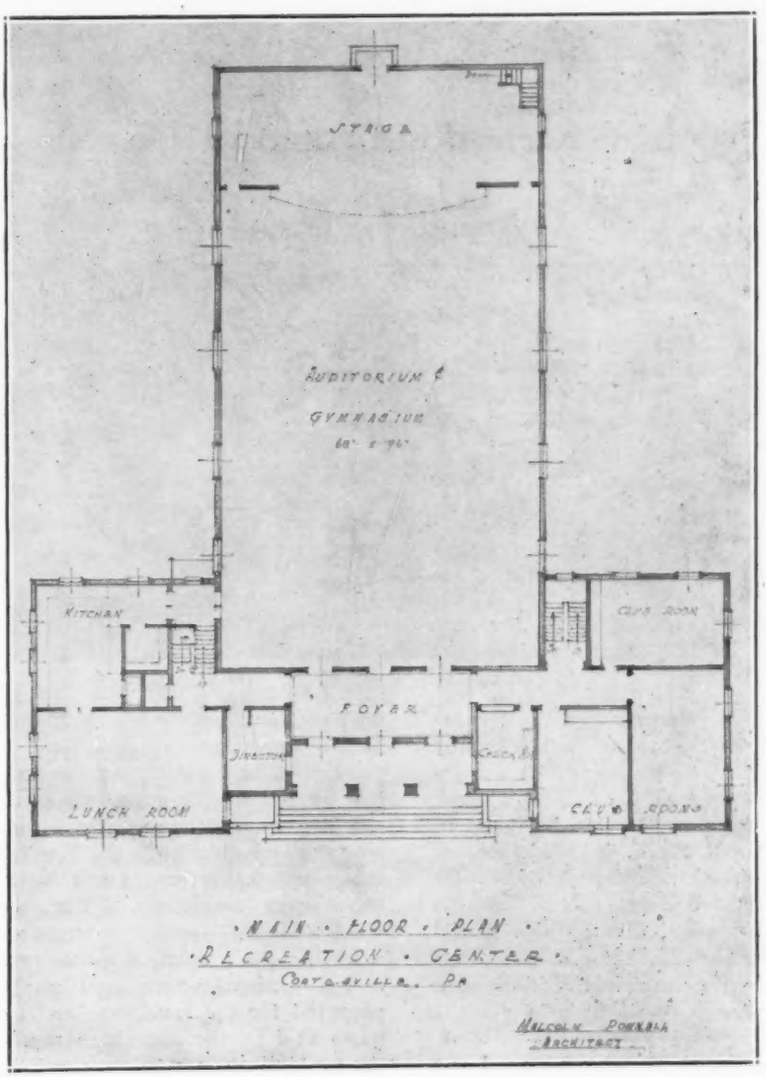
School Develops Community Program

Ever since 1925, when Superintendent H. R. Vanderslice announced as Coatesville's community school policy that school buildings should be school houses by day and community centers by night, the Adams School has been developing its community program. Today, the indoor recreation program includes skating, hobby clubs, games, boxing, wrestling, basketball, and social dancing. Artcrafts, library work, forums, and special classes for young and old are part of the after-school activities. In addition, a free adult school is held evenings during the fall and winter months.

Community response has been very good and has clearly demonstrated the need for better and more adequate physical accommodations than the school building affords, even with the recent addition of a modern kitchen, a cafeteria, and music and sewing rooms. The Memorial Recreation Center, which is designed to supplement the school facilities, is the answer of the community and the city to this felt need.

The building itself will have three floors. On the main floor, a large





lobby will display the memorial plaque dedicating the structure to all citizens of Coatesville who served in the Second World War and "signifying in some growing form to the generations yet to come our acknowledgement of this great debt." The lobby will lead into the double gymnasium with stage which will occupy most of this floor. The office, three club rooms, a kitchen and lunch room are also on this level.

The second floor is given over entirely to club activities. There will be a small balcony above the auditorium-gymnasium. One of the larger rooms, which is served by a dumbwaiter from the kitchen, has a platform in it.

The basement, where the heating plant will be situated, will also provide the following facilities: bowling alleys, arts and crafts and game rooms, a nursery, a corrective gym, and showers, lockers, and dressing rooms.

Assistance in planning the building and program was obtained from the Recreation Division of the Federal Security Agency and from the field service of the National Recreation Association.

Behind the building plans and the school-community center program is a basic conception of the relation of recreation to education and of the need to begin relating the two in the local community. The community is thought of as an entity. Education is considered more than the acquisition of a minimum of general information: it is looked upon as training for a life together on the highest levels, a process which goes on from the nursery school to old age. This means that the school must concern itself with all the people of the community and must so order its plant and so direct its staff.

The Adams School is open from 8 a. m. until 10 p. m. weekdays except Saturdays during the school year. The School coordinates community services and fills gaps in community needs not satisfied by other agencies. It makes one process of the educational, recreational, and social service activities of the community at all age levels. After-school recreation goes on from 3.15 to 5:00; special group activities are carried on from 5:00 to 7:00; and community center activities are engaged in from 7:00 to 10:00.

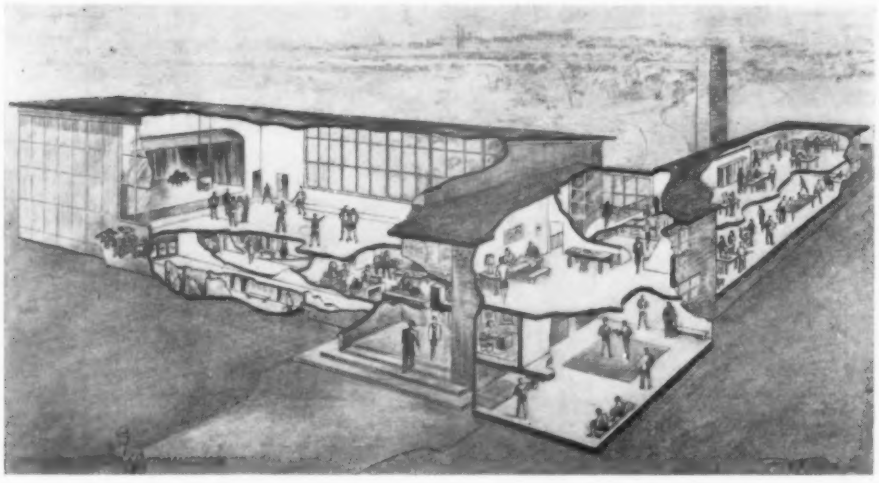
Although this East End community is largely colored, the ideal of integration dictates a program which draws no color line. The philosophy of the school, which will be the guide for the conduct of the Memorial Center, is well put in the words of the Principal of the School, Thomas J. Anderson:

"We conceive of public education and public recreation as a single project with common goal. Stated succinctly, it is the complete integration of the people into a democratic society. By setting up activities which draw people close together through common experiences, helping them work together through the medium of activities which afford release from tensions and satisfy people's basic urges, we think we are expanding the area of good will. We sincerely believe that good-will is basic to the solution of man's problem and that its roots must be planted in the smaller units of society and expand into the large areas."

Present costs and difficulty in obtaining building materials have held up construction on the Memorial, but the community center activities are being carried on in the school building until the new center goes up.

The Young Men's Christian Association and the School Board jointly sponsor the extensive community center program.

Proposed Recreation Center for Detroit



ABOVE is shown an artist's drawing of a proposed recreation center for the City of Detroit which was included in the Plan Commission's recent report, entitled "Proposed System of Recreational Facilities." The report points out that, although open play areas take care of the city's recreational needs, some activities require special facilities, and that these must be furnished by the municipality if they are to be available to all the people of the city.

The recreation center pictured was designed by the Detroit city engineer for the department of parks and recreation. The building features in its left wing a small auditorium seating 500 persons, which may also be used as a basketball court. On the floor below are shower rooms and a crafts room with machinery. The right wing contains another crafts room, a boxing gymnasium, a games room, and a kitchen, where food may be prepared for the luncheons and banquets held by the organizations using the building.

Villages Take Part in Toledo Regional Plan Discussion

A noteworthy step forward in promoting understanding of metropolitan planning objectives and problems was taken by the Toledo Regional Planning Association recently in inviting representatives of the villages of Rossford, Sylvania, Maumee, Perrysburg, and Waterville to a round table discussion entitled "The Place of the Village in Regional Planning." The discussion was based on the belief that Toledo and the villages need each other in any well-conceived planning program for the area.

Members of the Toledo Regional Planning Association, which consists of seventy affiliated groups representing the professions, business, labor, and interested citizens, have made another significant move forward by now permitting the Association to take action on planning issues instead of confining its efforts toward promoting education in sound planning objectives.

Testing new fog nozzles at Victory Pier.

Long Beach, Calif., Betters Fire Insurance Rating

By SAMUEL E. VICKERS
City Manager
Long Beach, Calif.

FOLLOWING a survey by the National Board of Fire Underwriters in May 1946, the insurance rating of Long Beach, Calif., was changed from Class 4 to Class 3, automatically lowering premiums from 26 to 24 cents per $1,000 for shingled houses and from 24 to 20 cents for composition-roofed houses. The rates on commercial buildings were reduced 8 to 12%.

Increased water supply is one of the outstanding factors contributing to the decrease in the fire rates. Additional water mains connect our water wells with the metropolitan water system. This extra supply provides a greater and steadier volume of water for the high-value districts. Improved looping of the water mains in the downtown area has also assisted in the protection of this area.

Careful inspections are made in the fire districts. Company commanders in districts where structural conditions are hazardous are conducted on inspection tours by a member of the fire prevention bureau. Notes and sketches of the location inspected are taken back to the stations, where drawings are placed on blackboards and a fire problem is used as a basis for improving fire fighting methods. Such various aspects of firemanship are emphasized as wind conditions, weather, hydrant locations, pumping engine operating procedures, rescue practices, ladder practices, and ventilation.

Bureau inspectors are assigned specific duties, such as investigation of fires and of hazards in industries, garages, places of public assembly, retail store; and the issuance of business license. These duties keep the fire department in close contact with the state fire marshal's office, the police department, the juvenile bureau, and the health department.

The Fire Prevention Code is continually amended to meet new situations and enables the department to be aware of new hazards and the methods for handling them.

Mutual agreement between the Long Beach building department and the fire prevention bureau has improved building standards throughout the city. Checking all city licenses with the building department has placed businesses in their correct category. All plans for new construction and remodeling of buildings must meet with the approval of the fire prevention bureau and the building department.

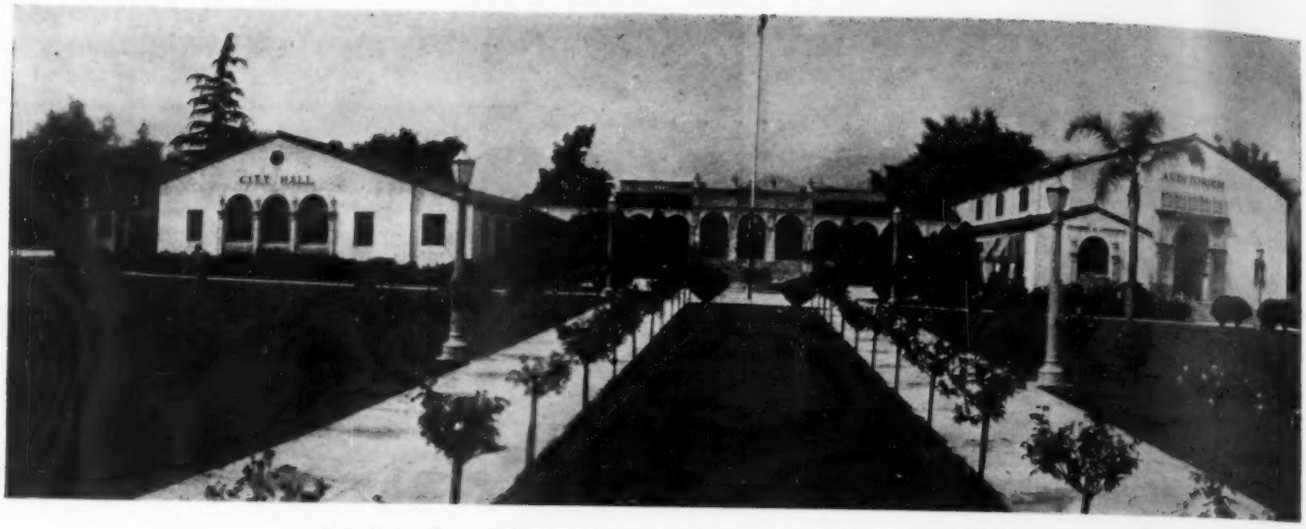
Long Beach has a fire force of 260 and a total department personnel of 290. The sixteen stations are located to protect principal business and adjoining districts. Headquarters—with pumper, ladder, and squad companies—is in the business district, and three engine companies are within 1½ miles. Engine companies are within one mile of important apartment houses, the amusement district, and the shopping district. Residential districts, except in remote corners and outlying strips, are within 1½ miles of pumper protection. One station is located at the most important section of the harbor and one at the municipal airport.

Equipment for the department includes:

- 8 pumping engines
  - Ahrens-Fox 500 gpm
  - Ahrens-Fox 750 gpm
  - 2 Pirsch 750 gpm
  - Mack 500 gpm
  - Mack 750 gpm
  - 2 Mack 1,000 gpm
- 5 piston pumpers
  - 4 Ahrens-Fox 900 gpm
  - Ahrens-Fox 1,000 gpm
- 2 GMC first aid and salvage squad wagons
- 3 ambulances
  - 2 Packard
  - 1 International
- 1 Seagrave 85-foot aerial ladder truck
- 1 Mack quadruple 500 gpm centrifugal pumper and ladder truck
- 1 Mack hose wagon
- 1 fire boat equipped with 2 Chrysler Marine engines for propulsion and a 750 gpm Hale pump for fire fighting
- 1 Ford fog truck
- 1 Buick sedan for chief
- 2 Chevrolet coaches for battalion chiefs
- 2 DeSoto sedans for assistant chief and battalion chief

Three retired 750 gpm Ahrens-Fox piston pumpers can be used in an emergency.

Glimpses of fire department action.



Azuza's newly completed civic center, built around the library building.

Evolution of a Civic Center

TOP: *The outdoor bandshell is another important part of the civic center. It is not attached to the old library wing, but is situated in the park near by.*
BOTTOM: *The new fire department headquarters, most recent wing to be added.*

Azuza's long-range plans are realized with the integration of its municipal departments

A LONG-TERM civic center project was successfully completed in Azuza, Calif., recently when the city's fire department moved into its new quarters in the center. The civic center idea originated in 1904 when the public library of Azuza was installed in the one-story, Spanish-type building which had been the city hall. This library became the main section in the U-shaped building which was later constructed, and the additions were carefully planned to conform to the architecture of the library.

Additions Begun in 1928

Plans for developing a civic center were made in 1927, and a bond issue of $75,000, authorized by the voters, made the first additions possible. Two wings, housing the municipal auditorium and the city offices, were added in 1928. Since then other additions have been made to the wings, and the center now houses all of the city departments as well as the Chamber of Commerce, municipal auditorium, and public library. The new fire house was constructed at a cost of about $20,000, according to Mayor Ray Lamm. Improvements were made on the police department and jail sections of the center at the time the fire hall was added so that the buildings are now complete.

The Sweetwater Sidewalk Ordinance

By HARRY R. BONDIES
City Attorney
Sweetwater, Texas

ORDINARILY, the condition of the sidewalk bordering any property reflects the care or neglect of the owner of that property. The owner is aware of the condition of the sidewalk at all times, and it is within his power to correct any apparent defect which may threaten injury to the pedestrian.

Our courts say the municipality is liable for any damage due to a failure to care for and maintain the sidewalk in a reasonably safe condition. If there be any logic in this holding, in the light of present practices of the abutting property owner, it lies in the theory that the city controls the sidewalks; hence, as a corollary, liability for the condition follows. That logic, however, does not conform to the realities to which we have pointed. In all those cases, and in all others, where there has not been affirmative negligence by the city, the duty of the abutting property owner logically should be correlated to his pleasure and greater convenience to care for and maintain his own sidewalk.

And that is the purpose of this ordinance. It does not purport to relieve the city of liability, where the law of negligence would impose it. That cannot be done. (*McQuillan Mun. Corp.* Sec. 2916). If liable ab initio, such liability would continue but secondary to that of the abutting property owner, upon whom the city would have recourse for any recovery against it.

The common-law rule, to the extent stated, can be altered by city ordinance where authorized by statute.

It is believed that Home Rule cities, like Sweetwater, are authorized by Section 16 of article 1175 R.C.S. Texas, to impose such liability upon the abutting property owner. This, without comment thereon, seems to be the holding of the Court of Civil Appeals concerning an ordinance of the Home Rule city of Dallas (*Texas Co.* vs. *Grant*, 179 S.W. 2d 1009, Sec. 9) apparently concurred in by our Texas Supreme Court, without comment, in the same case, reported in 182 S.W. 2d 996. The Sweetwater ordinance rests upon the provisions of the statute cited.

Of course where, under the law of negligence, for want of participation in or knowledge of the defective condition of the sidewalk, no liability is cast upon the city, the ordinance would not be relevant. But, where, with actual or implied knowledge of the city, the condition was created by the owner or user of the abutting property, or where, through act of omission, a defective condition exists, the ordinance would apply and should serve to clarify the reciprocal rights and duties of the parties liable therefor.

—*Condensed from* Texas Municipalities.

Sweetwater Ordinance

AN ORDINANCE FIXING PRIMARY LIABILITY UPON THE OWNER, OCCUPANT, AND USER OF ABUTTING PROPERTY. FOR INJURIES SUFFERED BY REASON OF DEFECTIVE SIDEWALKS.

BE IT ORDAINED BY THE COMMISSION OF THE CITY OF SWEETWATER, TEXAS, That:

WHEREAS, the sidewalks of the City of Sweetwater, Texas, are intended for use by the public as a means of travel by foot, and the public has a right to their free and unimpeded use for such purpose; and

WHEREAS, the uses to which many of the sidewalks in said city have been put by owners, occupants and users of the property abutting thereon, and the failure of such owners, occupants and users of the abutting property to properly maintain and care for such sidewalks, as hereinafter required, denies to the walking public the free and unimpeded use of the sidewalks, and thereby discommodes and tends to endanger the welfare and life of the pedestrian using such sidewalks and those who are forced, by the condition of the sidewalks, to walk in the street.

Section 1. It is therefore declared to be the duty and obligation of all owners, occupants and users of real property abutting upon streets in the city of Sweetwater, Texas, at their own cost and expense to maintain and keep the sidewalks (and paving laid thereon) bordering their property, at curb-grade and level and free of depressions, excavations, elevations, inequalities, obstacles; obstructions or encroachments; natural or artificial, above or below ground-level, or which overlap, inpinge upon or appropriate any part of the sidewalk area or the space eight feet above it; and to allow no oils, greases, ice, snow, or water to collect or remain thereon; and generally and in every manner to keep such sidewalks in a safe, adequate, and indefective condition, so that they are easily accessible to and may be free and safely used by the public for travel by foot. Provided that it shall be no violation of this ordinance to grow trees on the parkway of the sidewalks, where the body of the tree is not less than eight feet distant from the property line, and the limbs and branches are kept pruned off the body at least eight feet above the sidewalk.

Section 2. Where and when, by reason of a violation of any of the foregoing provisions, injury or damage is occasioned or inflicted upon any person, whether on the sidewalk or in the street, primary liability for all such injury or damage shall rest upon the owner occupant, and user of the property abutting upon such defective sidewalk.

Section 3. This ordinance is cumulative of and shall not serve to repeal any other ordinance concerning the maintenance and use of the city sidewalks, unless there be irreconcilable conflict, in which event, to the extent of such conflict, the previous ordinance is hereby repealed.

Section 4. Should any part of this ordinance be held invalid, no other part shall necessarily be affected thereby.

SEWAGE TREATMENT PLANT—GREENVILLE, SOUTH CAROLINA

MECHANICALLY CLEANED SCREENS—with intermittent automatic control. *Bulletin 258.*

GRIT CHANNELS—exclusive Camp chamber design and Regulator permit easy and instant variations in velocity. *Bulletin 249.*

GRIT SETTLERS—with conveyor and exclusive Hydrowash unit which removes grease and organic matter from grit. *Bulletin 249.*

GRIT ELEVATOR—vertical elevation of drained grit by exclusive design. *Bulletin 249.*

GREASE FLOTATION UNIT—removes grease and oils, oxidizes odors, and aerates by exclusive pre-treatment method. *Bulletin 260.*

SLUDGE COLLECTORS—for rectangular and circular tanks . . . can be furnished with helicoid cross conveyors. *Bulletin 253*

TELESCOPING SLUDGE DRAW-OFF VALVE—permits visible control of concentrated sludge withdrawal. *Bulletin 253.*

AERATORS — mechanical air diffusion type provides thorough and adjustable oxygenation and circulation of liquor. *Bulletin 254.*

ROTARY DISTRIBUTORS — reaction and positive drive types with exclusive trouble-free oil seal. *Bulletin 257.*

RAPID MIX TURBINE – provides violent turbulence for chemical mixing . . . supplied with simultaneous air diffusion device. *Bulletin 255.*

DOWNFLO FLOCCULATION UNIT–for slow mixing and flocculation of chemicals in sewage treatment processes. *Bulletin 255.*

Send for instructive bulletins listed above

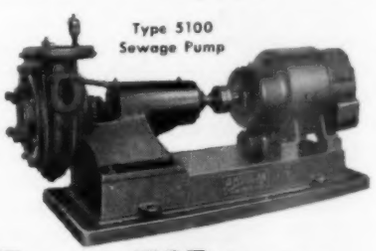
COMPLETE LINE . . .

Including many Exclusive Developments

Many years of close collaboration in the design of municipal and industrial waste treatment plants enable us to furnish a complete line of installation-tested equipment. Our staff of Sanitary Engineers is exceptionally well qualified to cooperate with consulting and operating engineers in suggesting the process of treatment and type of equipment best suited to individual needs. Additional modern plant facilities have increased our production capacity many times. Inquiries on new installations or improvements in existing plants will receive prompt attention.

SEWAGE AND SLUDGE PUMPS

American sewage and sludge pumps are designed to give outstanding service under severe conditions. Unusually strong and rugged in construction, they have ample factors of safety: generous shaft diameter, sturdy bearings, proper bearing span, finest materials, extra metal, careful inspection and testing.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The Course of Mechanized Utility Accounting

By A. KNAFF, Director
Public Service Division
Burroughs Adding Machine Co.

THE progress in office accounting during the last fifty years is so closely related to the developments in office machinery that the historical treatment of one necessitates consideration of the other.

About sixty years ago William Seward Burroughs, himself an accountant, invented and built the first practical adding machine for commercial use. As a result of his efforts the "American Arithmometer Company" of St. Louis was organized in 1886 to manufacture and sell his machines. Out of this grew the present Burroughs company.

Burroughs visualized a maximum sale of 8,000 machines, after which the company could liquidate. Just forty years later (1926) the company built its millionth machine. Since then over one million additional machines have been built.

Within the period from 1890 to 1910, a score or more adding, calculating, and accounting machines made their appearances on the market. Some have survived, but a great many more have passed out of the picture. This period saw the beginning of some of the present day accounting and statistical machines.

Around 1910 or 1912, a few courageous souls conceived the idea of posting ledgers by machine. These first machines did not even subtract. They were hand operated and took strong-armed persons to run them.

A retarding factor to the further development and more widespread use of accounting machines at that time was the almost universal suspicion of the loose leaf ledger as a safe repository for accounting records. It remained for World War I, and a shortage of accountants, to compel a more general acceptance of machine records. Given the opportunity to prove its indispensability, machine accounting rapidly forged to the front.

World War I Started It

At about the time of World War I, public utilities had to find ways and means of reducing the clerical time required to handle customer billing and accounting, one of the largest figure processing jobs anywhere.

The problem was presented to manufacturers of adding and accounting machines. The only accounting machines then available were of the type used for posting commercial accounts receivable and bank ledgers and statements. It was from these models that the first utility billing and ledger posting machines were developed.

The first billing machines of the adding machine type were designed to post only meter readings and consumptions on the bills, the amounts being entered with rubber stamps or by pen and ink. Ledger accounts were posted at a separate operation, either with posting machines or manually. Typewriter accounting machines were also developed about that time for simultaneously writing the bills and posting the ledgers by the use of carbon paper.

Book-less Bookkeeping

While these machines offered relief, particularly in the larger metropolitan areas, the clerical help situation in some areas was so acute that radical measures had to be taken. One of these measures was the elimination of the customers' ledger and the substitution in its place of a copy of the bill (now commonly referred to as a stub or office record). This saved the time of entering bills in the ledger, as well as the time of entering the meter orders, and brought about the era of so-called book-less bookkeeping, which subsequently became known as the "Stub Plan" of customer accounting.

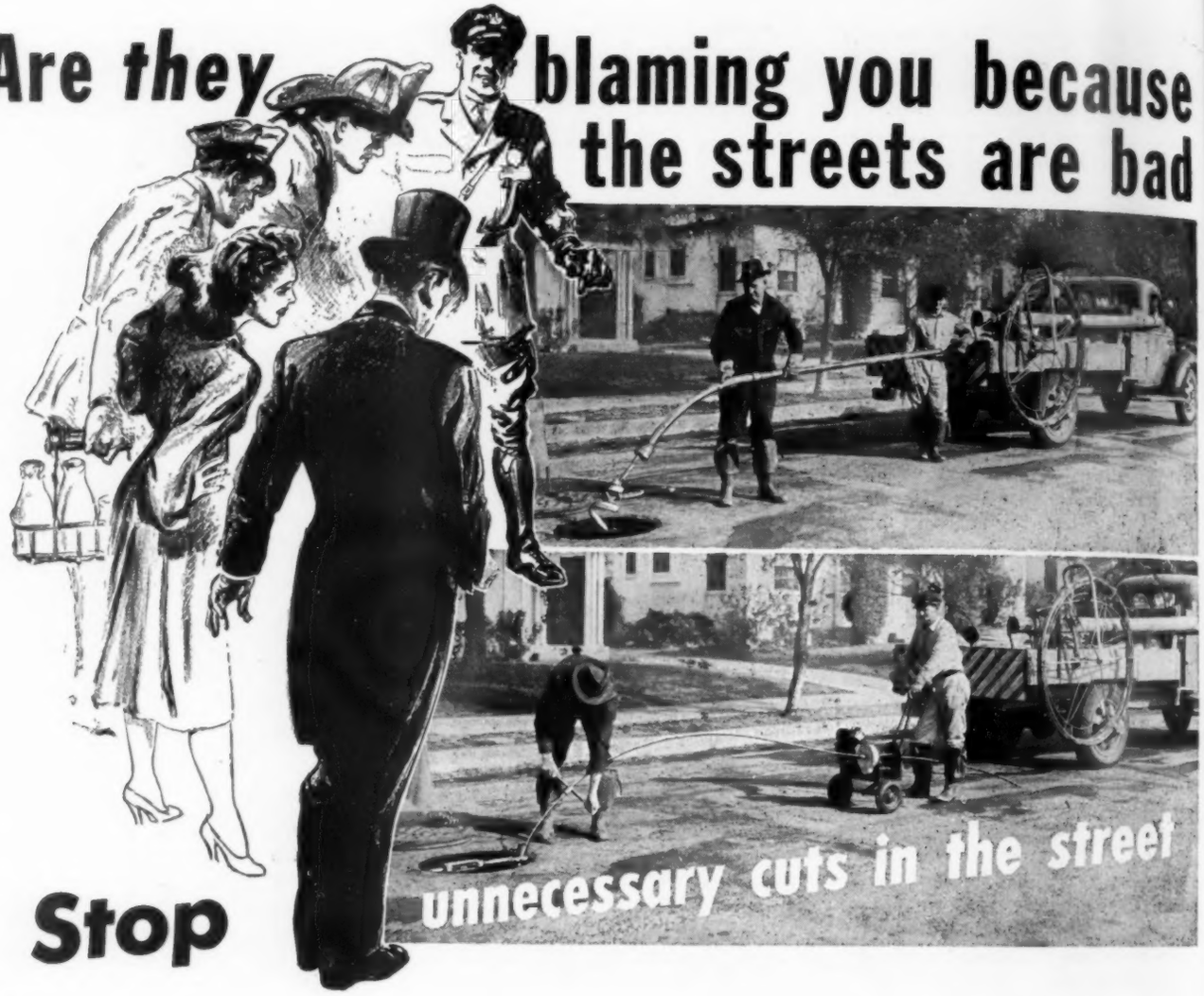
Shortly following the development of the "Stub Plan," another plan, now commonly referred to as the "Register Sheet Plan" made its appearance. This plan was also based on eliminating the customers' ledger. It provided for registering twenty to forty bills on one sheet and was considered a less radical departure from orthodox accounting procedure than the "Stub Plan." As a matter of fact, it was patterned somewhat after the Boston type ledger then in common use in utilities. The "Register Sheet Plan" in the succeeding years, however, did not approach the "Stub Plan" in popularity, probably because it lacked the flexibility of a unit record.

With the advent of book-less bookkeeping plans, billing became the most important part of customer accounting and brought on rapid developments in billing machines to meet the new requirements. These developments, particularly in the adding machine type of billing machine, made possible the complete writing of bills and stubs and also the simultaneous writing of the bills and ledgers, all in original print. This step helped further to relieve the clerical problems of utilities which adopted book-less beekkeeping, as well as those which continued to use ledgers.

During the era of expansion and consolidation following World War I, there developed a definite trend toward centralization of control. In utilities this trend asumed major proportions. Centralized billing, along with the cycling of meter reading, billing, and related accounting resulted in major reductions in meter reading and customers' billing and accounting costs.

The public utility billing machine

Are they blaming you because the streets are bad



Patches in your city streets may be *Rough Reminders* that *obsolete pipe cleaning methods* are being used.

It's seldom necessary to tear up pavement when modern FLEXIBLE pipe cleaning equipment is used.

FLEXIBLES eliminate more than 50% of the "dig-ups" required by old outmoded methods. And when you figure costs, remember "dig-ups" are expensive.

Your Sewer Department can be modernized easily and economically with a Standard City Set of FLEXIBLE SEWER ROD EQUIPMENT. FLEXIBLES pay for themselves in a short time because they speed up work. A few men can clean more underground pipe than an entire crew working with old outmoded methods.

The "Flexible" Power Drive speeds work, operating on the same principle as ratchet turning handles, but turning rod into the pipe line continuously at about 5 times hand-turning speed.

No matter what the pipe cleaning problem is, FLEXIBLE can lick it. FLEXIBLE manufactures a complete line of tools for every type of pipe cleaning job — there are attachments for removing sand, roots, rocks, marine growths and any other pipe stoppages.

FLEXIBLES are fast, efficient and effective. Let FLEXIBLE show you how to clean underground pipes. WRITE FOR ILLUSTRATED CATALOGUE.

855 Board of Trade Bldg., Chicago 4, Ill.
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P. O. Box 694, Pittsburgh.
401 Broadway, New York 13.
29 Cerdan Ave., Roslindale 31, Mass.

Flexible SEWER ROD EQUIPMENT CO.

9059 VENICE BOULEVARD • LOS ANGELES • CALIF.

today is a highly specialized piece of machinery, designed to write bills, post ledgers, and supply statistical data as a by-product, with greater speed and accuracy and with less operator effort than was dreamed of when the first machines were put to use.

Concurrently with the developments in billing machines, many innovations in customer accounting were devised, so that today customer billing and accounting is considered to be one of the outstanding streamlined operations in the accounting field.

Cost and Inventory Accounting

The era of expansion and consolidation following World War I also developed the need for up-to-date figure facts on operating costs, inventories, and plant construction costs to assist management in planning for the future. As an aid to developing comprehensive cost figures, uniform account classifications were adopted. These requirements greatly increased the accountant's burden and brought about changes in handling the major divisions of general accounting, such as Material and Supplies, Labor (including payrolls, paychecks, and employes earnings records), Transportation, Accounts Payable, summarizing distribution media, and posting of operating, work order, subsidiary, and general ledgers.

More recently, with the advent of social security tax, unemployment insurance, withholding tax and reports of operations to federal and local governmental bodies, the figure processing job has increased tremendously.

The development of machines for handling general accounting work has kept pace with the development of billing machines. Although machines have been successfully applied to all the major divisions of this work in many companies and municipal utility departments, they have not been accepted as widely as in customer billing and accounting. The general accounting field, therefore, offers great possibilities for mechanizations and resultant reduction in clerical expense.

Considerable progress has also been made by manufacturers of auxiliary equipment and supplies such as forms, ledger trays, binders, filing equipment, addressing machines, sorting devices, reproducing devices, summarizing boards, etc., which have greatly contributed to the successful application of machines to the billing and accounting problems and also to lightening the burden of processing masses of figures.

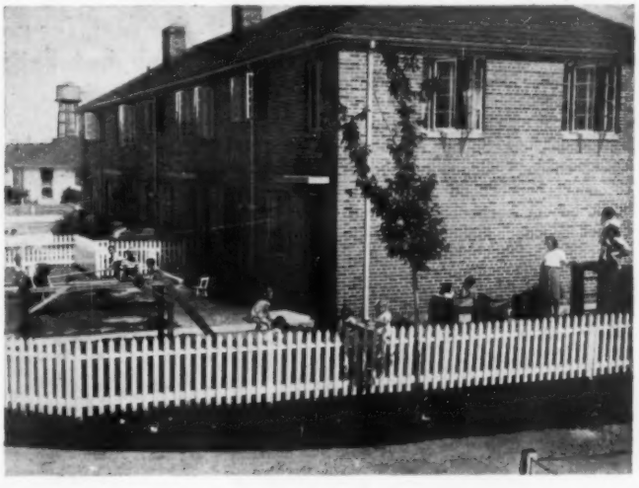
The continual developments in the scope of accounting machine practices have greatly increased the responsibilities assigned to the machine operators. The question which now frequently arises is: should a complete job be done with one machine at one operation, or is it better to split the job into two or more simple operations? Some utilities have already solved this problem satisfactorily with respect to customer billing by making the billing job a fast and simple operation, establishing only control totals as a by-product. Revenue and rate statistics are then obtained at a separate operation, combined with proving the bills. Similar solutions may be the answer to other machine accounting practices where the burden on operators outweighs the advantages of a combined operation.

The importance of accounting cannot be stressed too highly. The war period demonstrated the necessity for having figure information currently available. The same will be true today. Now, more than ever, accountants will be called upon to furnish figure facts on which planning can be based. Office machines make these figure facts available while they are news—not history—and with a minimum of clerical effort and expense. The developments in figure-processing machines made in the past should be a good criterion of what the future has to offer. We may take it for granted that as the accounting requirements change, mechanization will keep pace and will have as its objective the processing of more work in less time and at less cost. This is the modern way.

From an address before the Golden Anniversary Meeting of the Pennsylvania Water Works Association in October 1946.

Homes Replace Hovels in Norfolk, Va.

Four young lives begin on Cumberland Street in Norfolk.



Play time for nursery children, Merrimack Park Housing Project.

IN a booklet entitled "This Is It," the Housing Authority of Norfolk shows how it is removing hundreds of slum dwellings and replacing them with low-rent housing. Homes are being built for low-income families, with rents based on income. It is the belief of the Authority that "this is the time to start replacing eighteenth century hovels with twentieth century homes." Only a fraction of the needs of the homeless have been met. One-third of the applicants have been veterans; three-fourths have been Negroes.

NO MORE BEING TRAPPED on an upper floor of a burning building!

"Wake up, America!" Think of the lives that might have been saved in such holocausts as that at the Winecoff Hotel in Atlanta and the LaSalle Hotel in Chicago if an EVACUATOR had been rushed to the scene!

The EVACUATOR would have affected SAFE, SPEEDY rescue—

SAFE—because descent in this fire-resistant canvas duck chute would not have been cut off by fire or smoke—and because the sides of the chute make it practically impossible to fall out;

SPEEDY—about 18 times as fast as descent by stairway.

How much can a City afford to pay to save lives?

Fortunately, the comparatively small cost of the EVACUATOR makes it possible to have several available at the price of one ordinary fire escape.

One fireman ascends the ladder, attaches the EVACUATOR to a window frame, and supervises egress. The EVACUATOR can be carried folded, on the back of another fireman following up the ladder, or it can be hoisted on the ladder.

Three types of EVACUATORS are available: Model A, for high buildings; Model CA for vertical distances not over 30-40 feet; and Series P, for permanent installation in buildings.

WRITE FOR BOOKLET TODAY

EVACUATOR CORPORATION OF AMERICA

922 Book Bldg. Detroit 26, Mich.

Dissect Your Fresh Concrete

Fort Wayne, Ind., develops a method of testing the concrete to determine its sieve analysis and its water and cement content, and to foretell its strength accurately.

One of the annoying features of concrete inspection has been the fact that specifications always call for a concrete of a certain strength to be developed after some specified length of time, such as seven, fourteen, or twenty-eight days. After the material has gone into the mixer, the inspector had no way of knowing the quality of his concrete until this period of waiting had passed. Moreover, none of the methods generally available to him gave him an accurate appraisal of what actually was in the concrete.

The standard 6-by-18-inch compression cylinder has many annoying features. First of all, the concrete must be rehandled, thereby preventing it from being representative of the material in the slab. Next it must be placed in the cylinder in a manner that is not characteristic of the way concrete is placed on the subgrade or in the form. And finally it is not always cured the same way the actual concrete is cured. A compression test gives us the strength of the cylinder but not necessarily the strength of the concrete in the forms. A core test does give this information, but this can be made only after the work is complete and generally after the contractor has moved from the job. And on many types of concrete structures this test is impractical.

Past Difficulties Eliminated

We in Fort Wayne have attempted to eliminate these difficulties by a method of dissecting the fresh concrete. We developed this because we felt that we were entitled to know what we were buying. Moreover it didn't appear logical to us that we had to rely on what was in a stock pile in order to guess at the actual gradation of our concrete. We liked the accurate and thorough control that one has over asphalt mixes and saw no reason why the same sort of control should not be applicable in concrete construction.

In our method, we take a representative sample of concrete, weigh it, dry it slowly, and then collapse the hardened mass carefully with a blunt instrument without injury to the aggregates. We then screen the dried mass. We customarily make 10 separations: 1-inch, ¾-inch, ½-inch, ⅜-inch, ¼-inch, #8, #16, #50, #200, and passing the #200, into which category cement falls. These are of course our own selections. Other designers may prefer some other choice of screens.

A sample of concrete after "dissection."

By W. H. DROEGE
Materials Chemist
Fort Wayne, Ind.

This allows us to determine many characteristics of the concrete that are unavailable in the more conventional tests. For example, we can test the soundness of material in the concrete. We can check accurately the proportions against the theoretical values set at the batching plant. We can determine the amount of water actually in the mix and from this determine within 200# psi what the strength of the concrete will be at three, seven, or twenty-eight days and what the water content is within the half-gallon per cubic yard.

To make these tests we customarily use a sample of concrete weighing not less than 500 grams and generally not over 3,000. We find that it takes between five and ten minutes to dry the sample and determine the moisture content. After collapsing the sample, we can put it in a power shaker and determine its sieve analysis.

What we particularly like about the method is its simplicity. In an emergency, one can check the amount of water in a batch by drawing on the services of any drug store. Couple this with its advantage in giving us prompt information about the strength and character of our concrete, and we have very effective talking points.

As a sample of the way in which we use the method, on one typical example for a Fort Wayne private building concern we tested the concrete and advised the builder that the concrete showed a water content of 9.17% and an air content of 3.92%, and that the compressive strength of the concrete would not be over 1,400# psi in seven days. An actual strength test showed 1,440# psi, which we believe is not sufficiently far from its mark to discredit us.

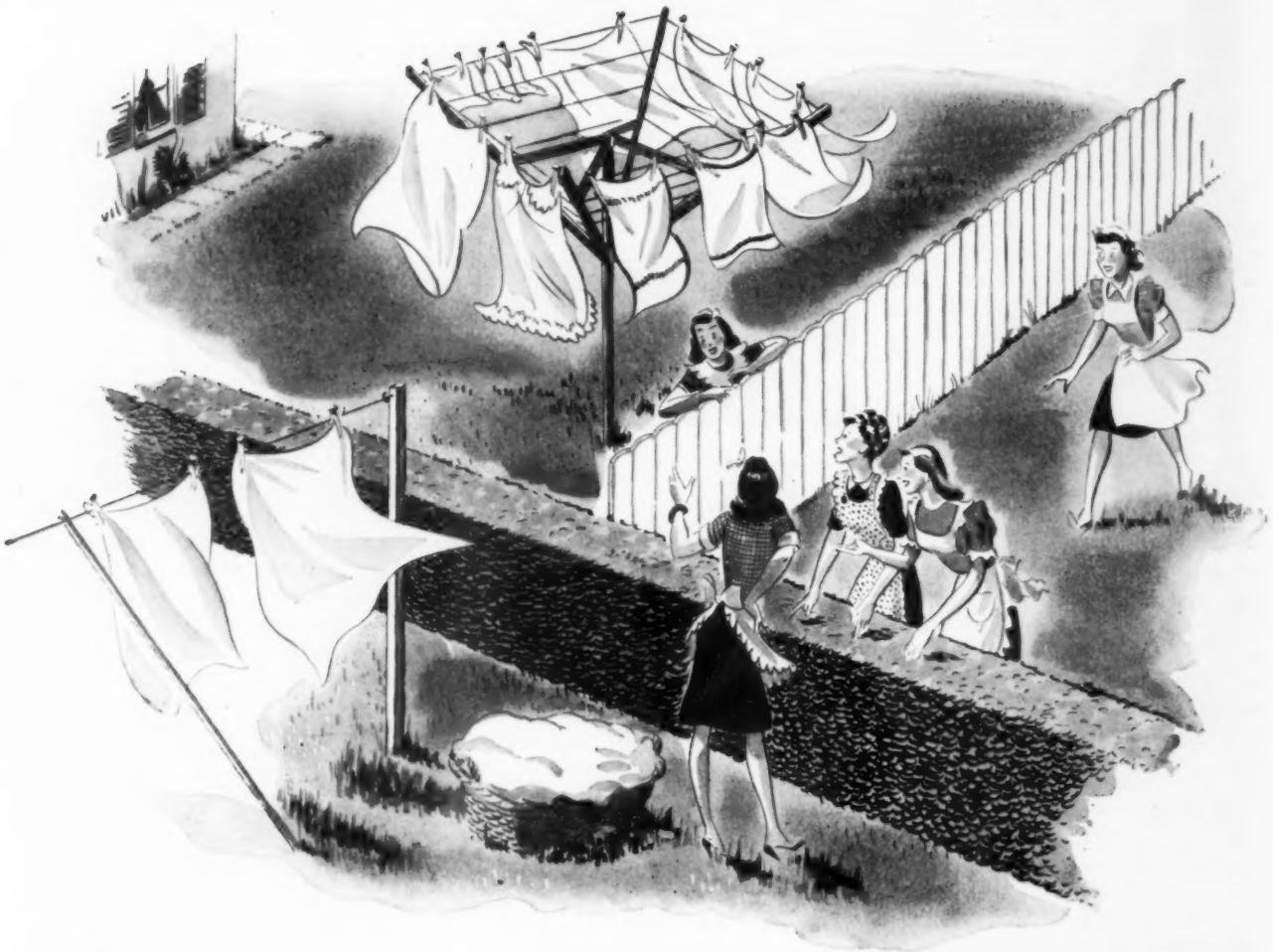
We find that for workability, ease in placing, and generally superior results, we get the best results from a concrete whose structure results, upon dissection, in the following analysis:

Passing	1½",	retained	on 1"	5%
"	1",	"	" ¾"	15%
"	¾",	"	" ½"	10%
"	½",	"	" ⅜"	7%
"	⅜",	"	" ¼"	3%
"	¼",	"	" #8	8%
"	#8,	"	" #16	8%
"	#16,	"	" #28	7%
"	#28,	"	" #50	10%
"	#50,	"	" #200	8%
"	#200	(portland cement)		12%
Total water				7%

One can, of course, roughly subdivide the material into coarse and fine aggregates, making the division at the traditional ¼-inch screen, but we believe that a specification as shown above gives a better picture. Out of it, one can determine that, in a cubic yard of concrete weighing 4,000 pounds, there will be 280 pounds of water or 33 gallons, 480 pounds of cement, 1,320 pounds of fine aggregate, and 1,920 pounds of coarse aggregate.

We conduct these tests on all concrete used by the city. This includes paving for walks, drives, curbs, and municipal buildings. We also conduct similar tests for privately used concrete if the owner requests it. For this work the city charges a fee similar to that charged by a private testing laboratory. The method does not sup-

THE WHOLE TOWN'S TALKING!

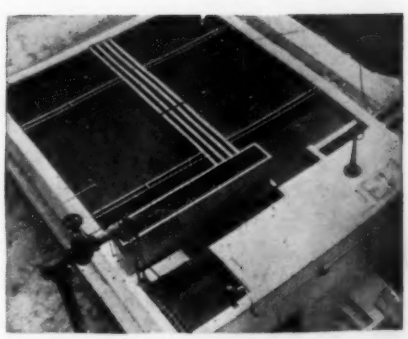


Every housewife in town is bursting with the exciting news of snow-white washes, with less effort, less soap. The reason? Their city management has installed modern, efficient Permutit* Water Conditioning equipment. It's the biggest thing that has happened in years.

From now on, municipal water will be clear...soft...iron-free! And good water does more than end household drudgery; it benefits everyone in town—shops, restaurants, and industry!

If your community has a hard-water problem—and the chances are it has—why not let the engineers of America's most experienced water-conditioning company solve it for you. Write today to The Permutit Company, Dept. A-12, 330 West 42nd St., New York 18, N. Y., or Permutit Company of Canada, Ltd., Montreal.

*Trademark Reg. U.S. Pat. Off.



PERMUTIT SPAULDING PRECIPITATOR ... removes water hardness, dirt, and color by the sludge blanket process. This modern equipment cuts detention time, saves chemicals, takes only half the space of former methods. This is only one of many Permutit methods of treating municipal water supplies.

PERMUTIT

WATER CONDITIONING HEADQUARTERS

plant the usual 6-by-12-inch concrete test cylinders. We still take samples and test them for compression but use these results as a check on the dissection method.

Our laboratory control of concrete was established in 1930. Through the laboratory over 17,000 tests and analyses have been made since that time. A core-drilling machine is also operated by the city. The control exercised by these inspection tests has resulted in a concrete noticeably less expensive to maintain.

The laboratory is operated under the direction of the Board of Public Works under the supervision of the writer. H. B. Baals is mayor.

Sheet Asphalt for Parking Garage Floor

THE first installation of sheet asphalt for building flooring appears in a parking garage for the New York Hospital at Cornell Medical Center, 68 Street and East River Drive, New York. It consisted of a 1½-in. wearing surface rolled to a ¾-in. thickness that provides an attractive, sound-deadening floor and promises to be easy to maintain.

The parking garage, primarily for the use of attendant and visiting doctors and nurses, adjoins the main hospital. The building has 60,000 sq. ft. of available area and consists of a basement and 3 floors connected by ramps. The building was constructed of steel beam and girder and 5-in.-mesh reinforced concrete floors. Its design allows a live load of 150 lbs. per sq. ft. in the basement and 125 lbs. elsewhere. Sheet asphalt was selected to improve the grade for drainage in order to be able to wash cars, to help eliminate disturbing noises, and to provide a waterproof surface that would stand up under the impact of cars rolling off the ramps.

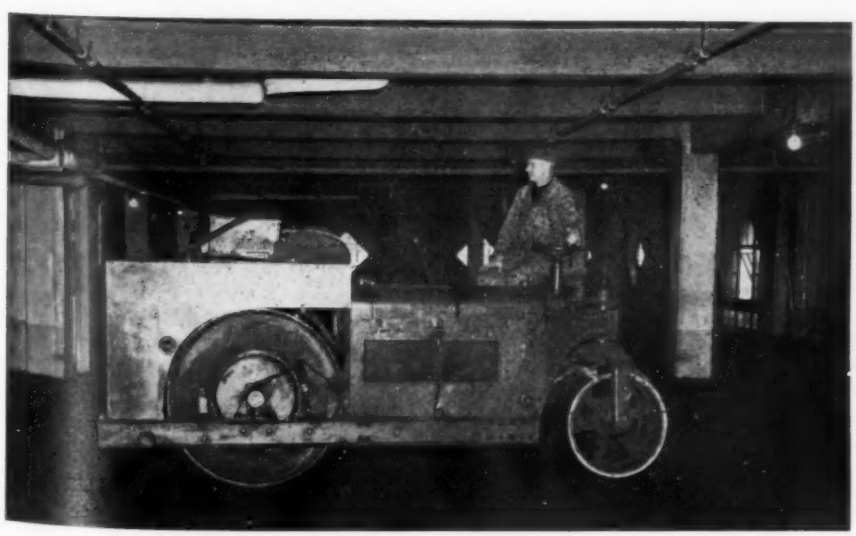
The construction took 7 working days and included tack-coat spraying and preparation of the oil and grease-soaked surface. The contractor cleaned the floor with broom and steam spray, and applied a tack coat with a compressor spray on a motor truck. The tack coat was allowed to dry for a day and was then covered by hot asphalt pavement to a compacted ¾-in. thickness over the entire floor, sloping to a 3-in. thickness at the side walls and around each column. A paving gang was able to do all the work.

Ventilation Problems Encountered

The chief problem encountered in the actual construction of the floor was that of ventilation while the fire box was in operation. The contractor solved this by placing clusters of two or three high-speed, ⅓-hp blowers, one at the fire box and the other where it could discharge the fumes either out the window or into the upper floors through drain holes in the ceiling. Best results were obtained by starting the blowers as soon as the fire box was brought into a floor area.

A 5-ton gasoline roller was used in the basement and basement mezzanine; however, a 3-ton roller was used on the upper floors and proved adequate to produce the compaction required. The roller engineer was able to manipulate his roller to within one inch of the walls and columns. Soil pipes and vent pipes that ran through sleeves from floor to floor were packed with excess asphalt heated by a blow torch and spread with an ordinary hand trowel which was heated. The slopes around the columns were smoothed with a hot finishing iron.

The type of pavement was recommended by the Asphalt Institute. The mix conformed to Borough of Manhattan specifications. The Building Chemicals Corp., New York, furnished equipment and labor to perform the work and collaborated with the Asphalt Institute in solving technical problems. The Vermilya-Brown Co., Inc., New York City, originally built the Medical Center.



A three-ton Buffalo-Springfield roller provided enough compaction to produce a ¾-inch wearing surface on the concrete floor of the garage.

Oakland Airport After More Business

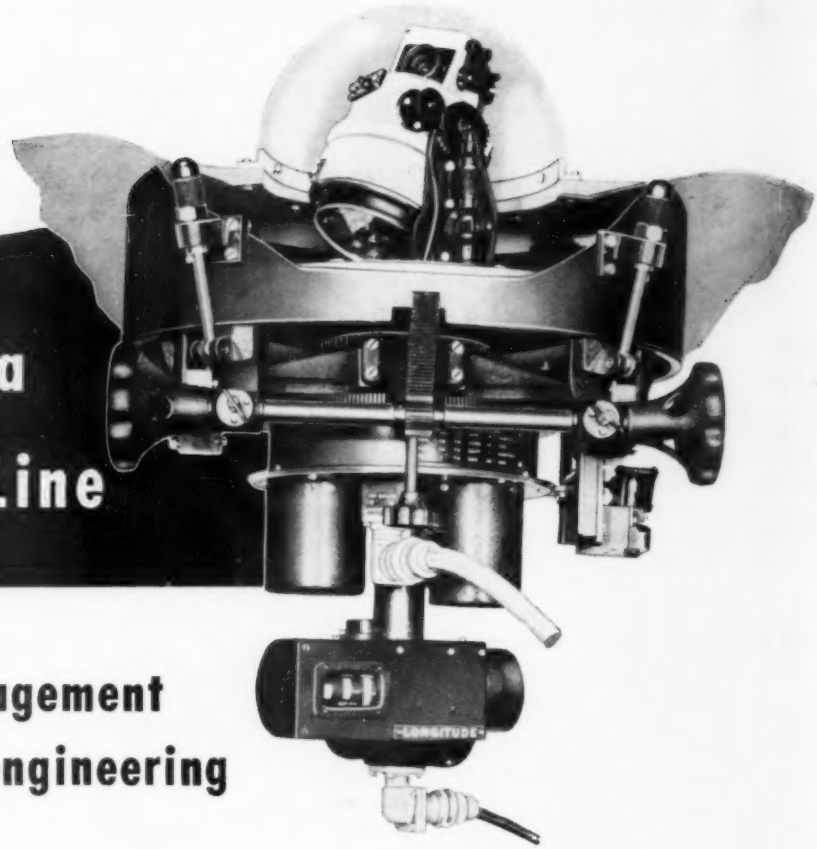
A NOVEL and concerted community drive to secure more air-transportation service has been launched in Oakland, Calif. Labeled the "Fly Oakland Airport" campaign and co-sponsored by the Oakland Board of Port Commissioners, which operates the municipal air terminal, and the Aviation Committee of the Oakland Chamber of Commerce, it seeks the following objectives:

1. To obtain a maximum of direct air-carrier service for Oakland and her sister communities.

2. To call the attention of the public and the air lines to the terminal facilities provided at the Oakland Municipal Airport.

3. To bring to an end the war-born practice of detouring Oakland passengers to San Francisco Airports.

Thinking a Straight Line



for better management and engineering

THE FAIRCHILD SOLAR NAVIGATOR is an important link in the Fairchild Aerial Survey. It is a "thinking" instrument that keeps the photo plane on a *straight* course when the terrain offers no clearly defined sighting points (as on many expeditionary surveys) . . . or when pilot visibility is poor and photographic visibility is good (this is not the paradox it may seem to be). The term "thinking" is applied because the Fairchild Solar Navigator automatically applies corrections that an expert pilot would make under perfect aerial mapping conditions; e.g., it corrects for variables like wind change and compass errors.

THAT FAIRCHILD conceived the Solar Navigator is as it should be. For this organization has consistently led the way in the development of the tools and techniques that spell the difference between simple aerial photography and the complex science of aerial photogrammetry. Use Fairchild consultation service when planning a survey.

For Industry, Commerce and Public Works

Since 1920, Fairchild has served clients the world over . . . conducting domestic and expeditionary surveys in the fields of:

Petroleum	Highways	Taxation
Mining	Railroads	Harbors
Geology	Traffic	Flood Control
Forestry	Utilities	City Planning
Waterways	Pipe Lines	Legal Evidence

Fairchild **AERIAL SURVEYS, INC.**

Photogrammetric Engineers

224 EAST ELEVENTH STREET, LOS ANGELES 15, CALIFORNIA • 21-21 FORTY-FIRST AVENUE, LONG ISLAND CITY 1, N.Y.

Remove Federal Controls Over the Construction Industry, Urges A.G.C.

A VIGOROUS protest by municipal and state officials of any attempted curtailment of construction and maintenance of highways, utilities, and other facilities necessary for the protection of public health and safety, is urged by the Associated General Contractors of America. In line with this recommendation, immediate removal of federal controls over the construction industry was demanded by A.G.C.'s Governing and Advisory Boards at their recent fall meeting.

In the opinion of A.G.C.'s Managing Director, H. E. Foreman of Washington, D. C., "the removal of price and other controls can be expected to result in spotty and temporary increases in price, but it will be true also, as the association has contended for some time, that the sooner restrictions are lifted, the sooner the natural forces of supply and demand and competition will level off prices to the point at which the public can be assured it is getting maximum value for its investment in construction."

Mr. Foreman warned that even after federal restrictions are removed, there will continue the necessity for close working relationships between industry and government because "the federal government has grown so large that its actions and policies adopted for years to come will have a powerful effect on business conditions."

Island Sewage Treatment

(*Continued from page* 86)

concrete and equipped with American Well Works collectors. The sludge line from the settling tanks connects with a 10 by 5 by 7 foot sludge pit, out of which the sludge is pumped to the digester. The digester, 35 feet in diameter and 20 feet deep, has a capacity of 140,000 gallons and is constructed of reinforced concrete and equipped with a steel PFT floating cover. Digested sludge is dewatered on four sand beds, each measuring 20 by 63 feet. The filter medium consists of ¾- to 1½-inch slag overlaid with ¼- to ¾-inch slag sand. A set of 6-inch underdrains carries away the filtrate.

Effluent from the primary tanks goes to a 17 by 16-foot chlorine contact tank 8 feet deep. A set of manually controlled vacuum feed chlorinators in the control building applies chlorine both at this point and at the bar screens.

The plant building houses on its lower floor the two main sewage pumps, one of 400-gpm and the other of 800-gpm capacity. On the second floor of the building is located the piston-type sludge pump, the Ideal gas-fired boiler with 183,000 BTU capacity, the two Pomona hot water pumps, and the Brown hot water temperature recording instrument. On the upper floor is the laboratory, the chlorinators, and the Republic flowmeters. The building itself is of reinforced concrete substructure and brick superstructure.

The digester control building, a reinforced concrete building built integrally with the digesters, has an upper and lower floor. The upper floor is 14 by 14 feet and 12 feet high. The building houses the 3-inch Pittsburgh-Equitable gas meter as well as valves, pressure gages, and pipe fittings.

County Is Purchasing the Plant

At the time the plant was constructed, the county government was unable to finance the cost, and the system was constructed as a federal project with Lanham Act funds. It is now leased from the Bureau of Community Facilities by the county and operated under service charges that are ultimately expected to provide sufficient revenue to permit the county to purchase it from the government.

The project was sponsored locally by Glynn County under the direction of H. J. Friedman, engineer-director. The county furnished rights-of-way and preliminary engineering, and it has entered into a contract for maintenance of the project. The property owners are assessed the costs of maintenance and connection to the mains.

Some November Election Results

(*Continued from page* 5)

District's affairs. The residents were given an opportunity to vote on two questions, with the following results:

1. Do you want to vote for your own city officials? Yes—116,559. No—49,669.

2. Do you want to vote for President, Vice-President, your own Congressmen? Yes—139,272. No—26,687.

Washington, D. C., civic leaders hope that this clear verdict will convince Congress that it should take some action.

In both New York and New Jersey, voters indicated approval of increased state expenditures for housing purposes. In Texas, $25,000,000 was made available for the purchase of land to resell to veterans on easy terms. California voters approved a $100,000,000 bond issue for veterans' farm and home loans. Louisiana approved a constitutional amendment increasing the homestead exemption of veterans from $2,000 to $5,000 for the years 1947 through 1952.

See "The Municipal Bond Market" on page 133 for totals on bond issues approved by voters throughout the country at the November elections.

Model Budget Laws

REPRESENTING several years of study by the National Municipal League's Committee on a Program of Model Fiscal Legislation for Local Governments, "A Model Accrual Budget Law" has just been issued and is available from the League's office, 299 Broadway, New York 7, N. Y. Another publication, "Cash Basis Budget Law," will be available soon.

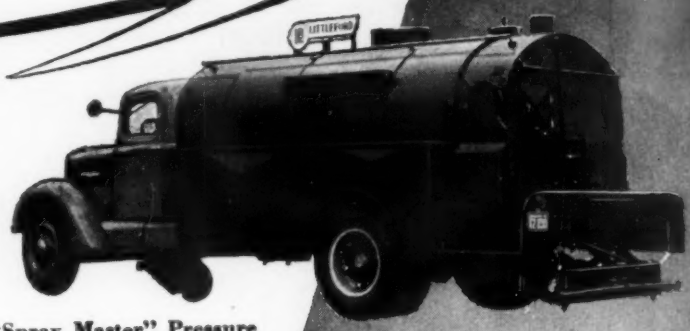
These two model budgets laws represent a consensus of leaders in the field of local government finance, and are thought to be the best means of attaining sound and scientific budget practice under either of the two methods generally in use throughout the country for setting up the income side of the budget.

The provisions of the laws are intended to enable governing bodies to make financial plans for both current and capital expenditures and to ensure that executive staffs administer their respective functions accordingly. The laws will also permit taxpayers and investors to form intelligent opinions based on sufficient information as to the financial policies and administration of the counties and municipalities in which they are interested.

BUILT TO CONSTRUCT AND MAINTAIN ROADS WITH 100% EFFICIENCY

For the improvement of old roads or the construction of new ones, the Littleford Black Top Units are engineered to do the job faster and with less operating cost.

The "Spray Master" Pressure Distributor applies Asphalt, Road Oils or Emulsion with a spray bar up to 24 feet in width. One Valve is all that is needed to operate the spray.

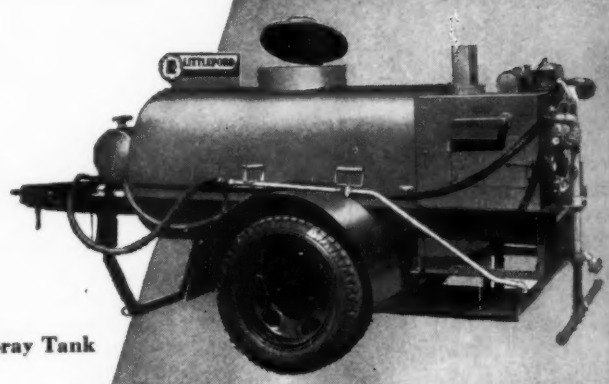


"Spray Master" Pressure Distributor

Model No. 101 Utility Spray Tank is a combination of three units, has spray bar for spraying, a hand spray for patch work and a pouring pot outlet for filling cracks.

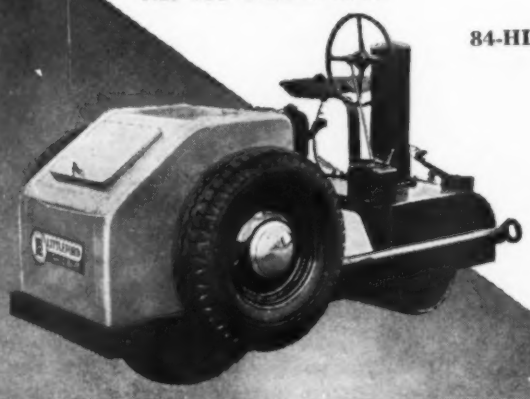
The 84-HD Kettle can repair any road by applying Asphalt to stones, gravel, etc.

With the Trail-O-Roller numerous rolling jobs can be done in one day, the roller rolls the road, then is hooked on a truck and taken to the next job. It will travel at any speed.

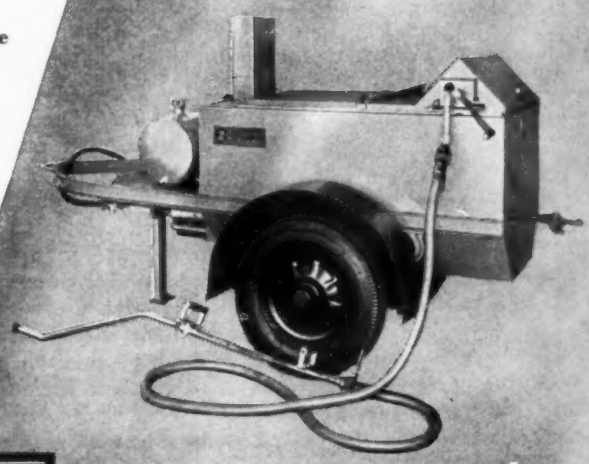


No. 101 Utility Spray Tank

No. 155 Trail-O-Roller



84-HD Kettle



BLACK TOP ROAD MAINTENANCE EQUIPMENT LB SINCE · 1900

LITTLEFORD

LITTLEFORD BROS. Inc.,

500 E. PEARL ST., CINCINNATI 2, OHIO

New York Sanitation Department

(*Continued from page* 88)

of a snow storm if vehicles are hired. They are sorted by placard number and checked for accuracy of computation of cubic yard capacity. "Hired Truck Load and Dump Tickets" are turned in at the close of each day's work. They are sorted and checked for owner's name, engine number, placard number, cubic yard capacity, unladen weight of vehicle, and for proper signatures and recommendations. Heretofore, the payrolls were prepared in duplicate in the districts and sent to this office for checking and insertion of extensions. This year, as an experiment, the payrolls will be made out entirely in this office.

Street Cleaning Pension Fund

The Relief and Pension Fund of the Department of Street Cleaning of the City of New York, more familiarly known to the rank and file as the D.S.C. pension fund, is a separate and distinct pension fund and bears no relation whatsoever to the New York City Employes' Retirement System. Membership in the D.S.C. pension fund was closed to new members on December 1, 1929 at the time the Sanitary Commission was created. The law was modified in 1929 to make the eligibility requirement solely a minimum of twenty-five years of service and to eliminate the age factor.

There are on the pension roll at present 3,454 employes, 1,683 widows, and twenty-one guardians of minors of deceased employes. The Pension Bureau does the accounting work in connection with the monies due to the pension fund, such as monies received from sale of ashes, 3% deduction from salaries, lost time, fines, and other revenues earmarked to be applied. Under the law, the city appropriates in the annual budget the sum necessary to pay all pensions in case the monies derived from the various sources of income are not sufficient.

This bureau prints all checks and payrolls for pensioners. Checks are mailed monthly to the address of record; and, upon return of the cancelled checks from the bank, reconciliation statements are made up to balance the account. There are more than 62,000 pension checks issued yearly, and the pension rolls total more than $5,000,000 a year.

Division of Gasoline and Test Audits

This division functions primarily as a service activity, although it does accomplish a great deal in the supply line. Its supply function is to:

1. Secure gasoline pumps for installation at new city garages.
2. Furnish gasoline portables to garages in preparation for the winter season.
3. Arrange for the repair of gasoline, oil, and grease pumping equipment.

These matters require contact with the private suppliers as well as with other city agencies.

The above supply duties have been delegated to this division because of the close contact it maintains with our garages and the oil companies. By this means we can expedite procurement of the gasoline, oil, and grease pumping equipment which is essential in garage operation.

Other division functions are of a service nature, as follows:

1. Auditing gasoline, oil, and grease from the daily consumption sheets (Form #158).
2. Balancing the monthly inventory of gasoline, oil, and grease for all locations in the department.
3. Preparing monthly consumption figures to be used in expense accounting reports.
4. Auditing the monthly gasoline statement of the oil company for payment.
5. Performing gas, oil, and grease test audits.
6. Billing other departments for the gasoline, oil, and grease we furnish to them.

The above services are performed with the view in mind of the conservation of, and the accounting for, these supplies. That end is attained by charging directly to each operating vehicle the quantities consumed. Excessive consumption figures are readily determined and an informal inquiry is made to determine the cause. The quantities received, dispensed, and on hand are reconciled monthly. Reconciliation is effected by verifying the quantities reported by the garage as delivered, with the quantities for which we are billed by the oil company. Quantities dispensed are reconciled by checking the daily consumption sheets against the monthly inventory. The total consumption figure is used in the preparation of reports for the review of Department officials. Test audits are conducted periodically by the employes of this division for the purpose of spot-checking the accuracy of the records as maintained in the Department garage.

Total annual consumption figures are 8,750,000 gallons of gasoline, 2,190,000 pints of oil, and 250,000 pounds of grease.

Statistics and Costs

The function of this division is to ascertain the expenditures from the regular budgetary codes, both for personal services and other services, for each of the major functions in the department; namely, sweeping and cleaning, collection, final disposition, and snow.

Expenditures for personnel as distributed to the above functions are obtained from the following sources: 1. from the weekly statistical section and garage reports sent in from all the districts to this division and from the reports sent in from all points of final disposition; 2. from the semi-monthly time sheets; 3. from the sick payrolls; 4. from the mechanics' time tickets.

The amount of money spent for material and supplies is obtained from the stores requisitions. Expenditures for gasoline, oil, and grease are obtained from the reports by the Division of Gasoline. Weekly statistical reports submitted by the operating forces are priced and coded and then tabulated on International Business Machines.

This division also compiles the number of cubic yards of waste material collected by our department trucks, the cubic yards of waste material (department and private) disposed, and the method of disposal. The information is assembled from the daily dump summaries submitted to this division from the various points of final disposition. The International Business Machines are also used to tabulate the number and types of injuries occurring to the men in this department over a specified period of time. The machines also tabulate the amount of supplies requested from the various districts, garages, incinerators, and landfills on requisitions sent in to the Division of Budget and Stores.

The Division of Statistics and Costs prepares and issues quarterly and annual statistical reports. The reports are used not only by the Commissioner of Sanitation and the heads of the various bureaus of this department, the Comptroller, the Budget Director, the Mayor, but also by the federal government.

While this comprehensive yet simple control applies to 12,000 employes operating from fifty-six garages which house 3,000 pieces of motor equipment, the principle and the methods are applicable to small cities and towns as well.

In Columbus It's a 76.7% Majority Vote FOR TROLLEY COACHES!

According to a survey by the Columbus Institute of Public Opinion, 76.7 per cent of Columbus' riders who ride more than 10 times a week prefer trolley coaches. Clean, quiet, smooth trolley-coach service is one big reason why 80 per cent of the city ride by public transit.

Here's why public-preferred trolley coaches can do much to reduce traffic congestion in your city:

They increase public-transit riding. Fast and comfortable, trolley coaches offer the kind of service that people actually prefer. Thus, they encourage more people to leave their cars at home and ride by public transit, reducing the number of vehicles on the street and decreasing traffic congestion.

Large passengers-per-hour capacity. One trolley coach can carry 44 seated passengers—the equivalent of 29 average automobile loads. Each transit rider uses seven times less street space than the automobile rider.*

Maneuverability. Loading and unloading at the curb, trolley coaches have a street clearance of 12 feet on either side. They pass stalled vehicles easily and enable all traffic to move swiftly.

Speed. Their proved ability to hold their own in busy traffic lanes speeds the traffic flow, gets people to their destination faster.

To minimize traffic congestion in your city—at low cost to riders, taxpayers, and the city: 1) Co-operate with your transit company by encouraging more widespread use of existing transit facilities. 2) Eliminate curb parking in central business areas. 3) Provide off-street parking areas. 4) Investigate trolley coaches for the backbone of your city's transit system. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

**Based on national average load of 1.75 passengers per automobile.*

See LIFESTREAM OF THE CITY, the movie that promotes transit service. Your G-E representative will arrange for a showing.

Listen to SPOTLIGHT ON AMERICA, the transit industry's national radio program. Mutual Network, Friday, 10 p. m. EST. See your newspaper for local station.

GENERAL ELECTRIC

Metered Parking Clears Congested Streets

BACK IN JULIUS CAESAR'S DAY, THE PARKING OF CHARIOTS CAUSED SO MUCH STREET CONGESTION THAT A REGULATION WAS PASSED FORBIDDING VEHICLES TO ENTER ROME DURING BUSINESS HOURS!

Millville, N. J., solves parking problem with its "customer-merchants" service..

By LEWIS R. HOGAN
Director
Department of Public Safety
Millville, N. J.

AT THE end of a six-months trial period, Millville, N. J., population 16,000, has found in its seventy-two parking meters the solution to a traffic problem of long standing.

During 1935 the parking situation in the business section was such that the merchants requested the Board of City Commissioners to enact a one-hour parking ordinance for the area. The ordinance was enacted and enforced; however, the resulting friction and dissatisfaction led to a laxity in enforcement and, consequently, in observation. Finally the enforcement attempt was abandoned.

Efforts were made through the Merchant's Association committee to move the all-day employe parkers from the business district, but the results were short-lived. Even the free municipal parking lot, just off the business area, capable of accommodating 150 to 175 cars, failed to draw parkers from the congested streets. In the summer and fall of 1945 the parking conditions became so acute that definite, constructive action was needed. An article in the December 1945 issue of THE AMERICAN CITY (page 110) on the East Orange, N. J., meters caused us to investigate the possibilities of parking meters.

The satisfactory experience of other communities the size of Millville persuaded us to try the meters. Karpark Corporation of Cincinnati offered us a six-months trial period at no expense to the city, and on May 15, 1946, seventy-two meters were placed in operation. Of the money collected, 75% was paid to Karpark to be used against the cost of the meters if we decided to keep them, and 25% remained with the city.

These meters were installed in the most critical area, comprising the three blocks on High Street from Main to Mulberry. They were spaced 22 feet apart, and each space was T-marked for parallel parking. Immediately the one-hour parking and the double parking difficulties disappeared. Police Captain Herbert C. Bittle, who is in charge of the meters, has noted that since the installation, the traffic accidents in the business district, which numbered as many as seven a month, have been reduced to zero.

Operation of Meters

Our meters are fully automatic. Each penny dropped in the slot allows for twelve minutes of parking, so that a nickel or five pennies buys a full hour of parking time. After a ten-minute grace period, the red violation flag drops over the face of the meter, and the overtime parker is subject to a fine of $1. Traffic tickets are so issued and checked that there can be no "fixed" tickets. The meters operate from 8 a.m. to 6 p.m. Monday through Friday and from 8 a.m. to 9 p.m. on Saturday. They are discontinued on Sunday.

We do not emphasize the financial returns from our meters, for we feel that the primary function is that of "customer-merchants service." However, we have had quite a satisfactory income. For the first nineteen weeks we collected $3,066, an average of $25 per day. All money realized on the meters is applied to traffic control work.

Before our meters were installed, we carefully presented the idea to the Millville Merchant's Association and to the public through our newspapers. Although there were a few who opposed the meters, we gained the support of the greater portion of the merchants and citizens. After two months of operation, most of the opposition disappeared, for in that time the accessibility of parking space and the steady turnover of parkers resulted in a considerable increase in business for the stores in the metered area. Merchants in the remaining four blocks of our business section promptly began asking for meters, and in the summer an order for seventy-five additional meters was placed.

Use Strictly Enforced

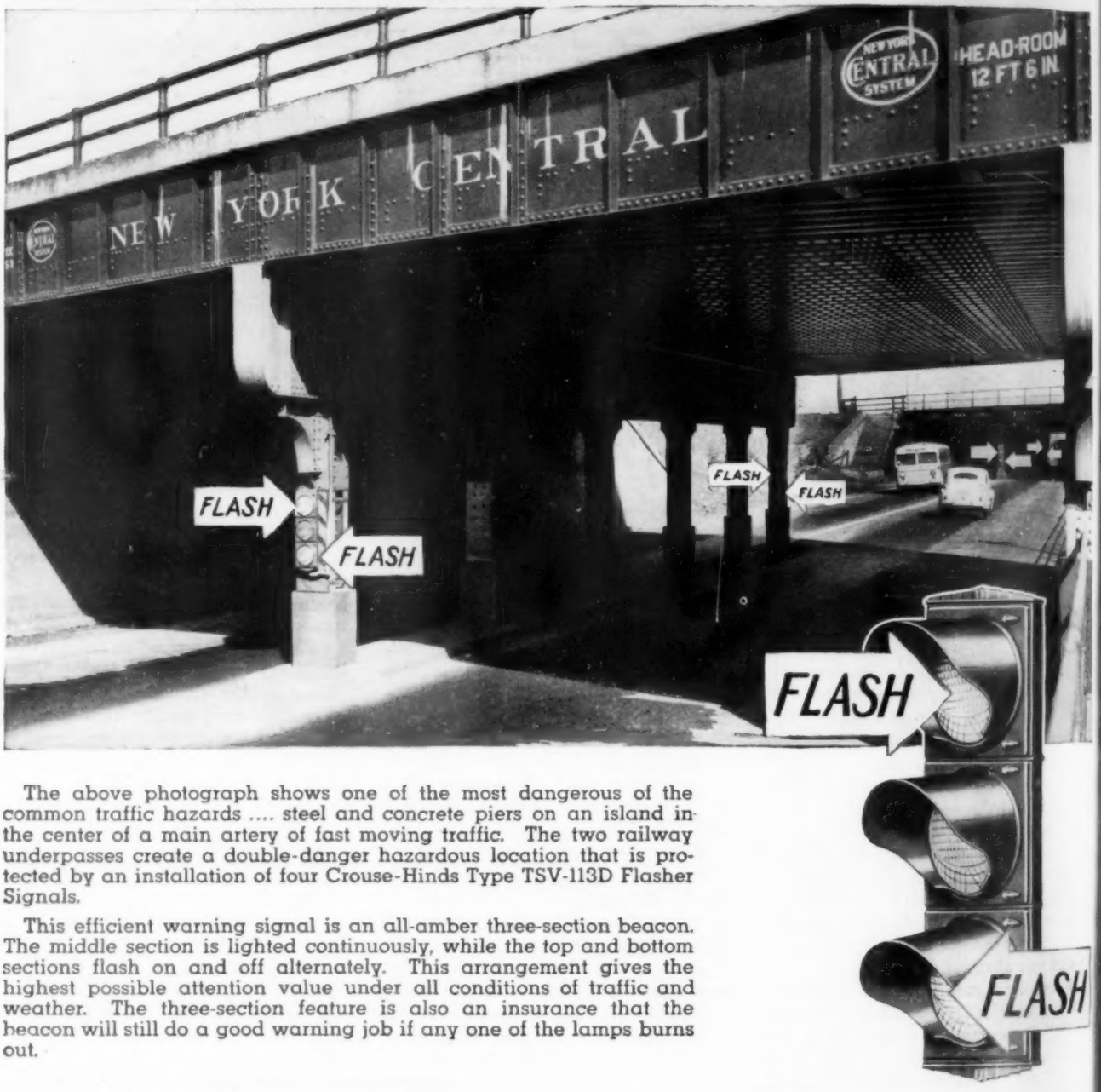
When the meters were first installed, the public received five days in which to become accustomed to them, and the regulations were published in the two daily newspapers. During the first week of operation sixty tickets were issued. By the nineteenth week, the number dwindled to fourteen. Strict enforcement, we are convinced, is the only means of making metered parking successful.

In September, Captain Bittle spoke on the South Jersey Town Meeting of the Air program, presenting our experience with metered parking to the other communities of the area. Our favorable results have provoked much discussion. Not only are Millville citizens and merchants pleased with the meters, but out-of-town shoppers as well have commented on the improvement in parking facilities.

(*More stories on page* 119)

Islands are potential ✕ spots and should be clearly marked with

CROUSE-HINDS *Flasher* Signals



The above photograph shows one of the most dangerous of the common traffic hazards .... steel and concrete piers on an island in the center of a main artery of fast moving traffic. The two railway underpasses create a double-danger hazardous location that is protected by an installation of four Crouse-Hinds Type TSV-113D Flasher Signals.

This efficient warning signal is an all-amber three-section beacon. The middle section is lighted continuously, while the top and bottom sections flash on and off alternately. This arrangement gives the highest possible attention value under all conditions of traffic and weather. The three-section feature is also an insurance that the beacon will still do a good warning job if any one of the lamps burns out.

Crouse-Hinds Catalog 226 lists a complete line of traffic signals, beacons, flashers, and a series of controllers designed to help you solve your traffic control problems ... from simple installations up to the most complex heavy traffic problem. Send for your copy.

Sustaining Member of I.M.S.A.

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CONDULETS • TRAFFIC SIGNALS • AIRPORT LIGHTING • FLOODLIGHTS

Seattle Untangles Intersection Traffic

By J. W. A. BOLLONG
City Traffic Engineer
Seattle, Wash.

Channelizing islands and traffic-actuated signal control at the intersection of Fifth Avenue South, Airport Way, and Dearborn Street reduced Seattle's accident toll by 90%.

THE combination of fifteen conflicting traffic movements created such congestion at the oversize intersection of Fifth Avenue South, Airport Way, and Dearborn Street in Seattle, Wash., that traffic frequently backed up as much as one-half mile during the evening peak period. Average daily traffic volume entering the intersection exceeded 22,500 vehicles, and in the peak 15-minute period there were as many as 575 vehicles from one direction. Heavy entering volumes rotated from street to street during the 24-hour period.

Studies at the intersection showed that stop-sign or fixed-time signal control would not provide sufficient flexibility. To remedy the problem, channelizing islands of reflecting-type curb were installed; and a traffic-actuated signal, designed by the writer and manufactured by the Eagle Signal Company, Moline, Ill., was provided for three-phase operation, with a special pedestrian phase.

Approaching vehicles are registered by means of magnetic detectors of two types; namely, permanent magnet and electro-magnet, located in approaching traffic lanes 90 to 100 feet back of the intersection. The controller "remembers" street vehicular demands, and the sequence of green time is in order of priority. The total cost for the improvement was $10,059. Lines for the traffic lanes were put down by a machine, manufactured in the Department of Public Works, which applies Prismo paint and glass beads on the paint for longer life and brilliance at night.

One particular problem in installing the traffic signals arose from the fact that one-half of the intersection is on a viaduct with a 600-volt, electrically operated train passing beneath. Special steps were taken to insulate impulses given by the train.

In the year prior to the improvement of the intersection, ten accidents occurred, representing an economic loss of approximately $1,250, excluding unmeasured losses due to vehicle delays. However, with the proper engineering studies, we have smoothed this former chaotic condition into a well-ordered intersection. The year following correction of the traffic congesion, only one accident occurred—a reduction of 90%.

The plan provides for flexibility and adaptation to changing requirements. With it Spokane hopes ultimately to eliminate all the principal hazards to vehicular and pedestrian traffic in the city at night.

One of the off-street parking lots that help to relieve the Louisville parking problem.

Let's Have Attractive as Well as Ample Parking

IN THE course of a penetrating study of the parking situation in Louisville, Ky., it became apparent we not only needed more off-street parking lots, but that existing lots left much to be desired in appearance and service.

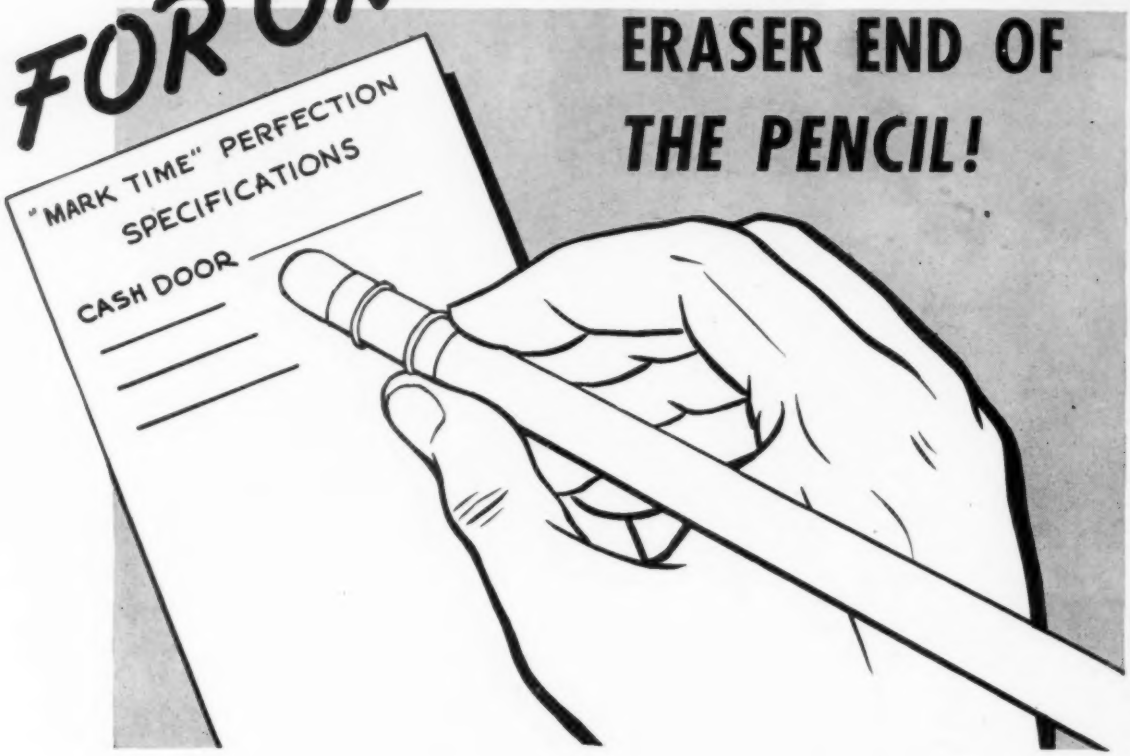
The Louisville Area Development Association investigated what other cities, such as Philadelphia, Milwaukee, Cleveland, St. Paul, Detroit, San Francisco, and Buffalo, were doing, to see if their provisions would apply in Louisville.

A committee met with a group of lot owners and operators to discuss possibilities. Some owners objected to the outlay for improving their lots since they considered parking a temporary land use. However, many owners and operators were willing to try to meet better standards. The association's staff assisted these operators in

(Continued on page 123)

"Precision-Timing Devices — Exclusively"

FOR ONCE WE HAD TO USE THE ERASER END OF THE PENCIL!



Even though the "MARK-TIME"* PERFECTION* is the simplest Parking meter manufactured, thousands of engineering hours go into the design of its precision parts.

In the rush to meet the demand for the new PERFECTION*, with the MAGIC LINK, we brought in consulting engineers who made a mistake in dimensions which was not caught until thousands had been placed in service. (Next time we will do the engineering ourselves.)

We have corrected production prints and MARK TIME* service men, all over the country, are busy making replacements — without charge, of course — so that communities may continue to enjoy the usual trouble-free operation that they have come to expect from MARK-TIME*.

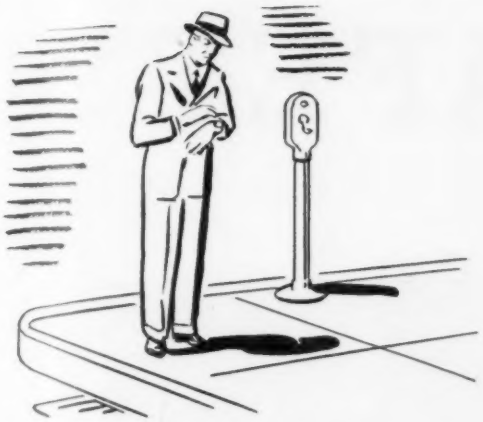
*Trade Mark registered.

M. H. RHODES, INC.

HARTFORD

CONN.

U. S. A.



You have waited so long!
Why not wait for the best.

"MARK-TIME"*

Perfection

EXCLUSIVES

- **Fully manual**
  (no complicated parts)
- **Simplified mechanism**
  (fewer service calls)
- **Magic Link**
  (vandal-proof)
- **Coin release**
  (pilfer-proof)
- **Sealed cash box**
  (lost-revenue proof)
- **Ultra Large Violation Signal**

CATALOGUE ON REQUEST

***TRADE MARK REGISTERED**

The 1000% Greater Visibility, all red, "setting sun," time dial is 100% faster to patrol, and a much greater convenience to the public.

This PRISMO *Line means*

SAFETY!

Photo—PRISMO LIFE-LINE—PALISADES INTERSTATE PARK, NEW JERSEY

● A typical reflective Prismo Life-Line means *safety* at night as in daytime. It outwears ordinary marking, offering a cost saving to your marking program. Full details in Prismo Bulletin 461. Nation-wide distribution.

● PRISMO COCKTAIL MIXER SLIDERULE—will enliven your lighter moments for the year-end and the year-round. Yours for the asking.

The SPHERE of SAFETY

PRISMO SAFETY CORPORATION

MUNICIPAL DIVISION

HUNTINGDON, PENNSYLVANIA

designing the layout of the lot, planning illumination and landscaping for better service and appearance.

The photograph (on page 119) of one of these lots taken early in the morning before the rush hour shows the layout. The design provides wide aisles to permit easy parking, adequate lighting, and a hard surface over the entire lot. Signs are conspicuously posted. Since the lot extends from street to street and is bisected by an alley, cashier's offices are provided at each entrance. Shrubbery will be planted. Charges are 15 cents for all day and 25 cents at night.

KATHERINE H. McCRACKEN
Assistant to Director
Louisville Area Development Association

Parking Authority Planned For White Plains

A PARKING authority to buy and develop parking lots for the city is to be organized at White Plains, N. Y., and bears study by other traffic-clogged cities, the American Public Works Association advises. Creation of the authority requires state legislation. Under current plans the authority is to be made up of five persons appointed by the mayor and will issue bonds to meet expenses. The proposed group would take over development of a newly-established cordon of metered parking lots around the central business district and would provide for new bus terminal facilities to reduce traffic congestion.

White Plains' parking problems are increased by the prospect of having United Nations headquarters nearby, and the recent opening of branches of several big New York stores. Old parking spaces have been reduced to permit broadened thoroughfares and building construction.

Off-street metered parking in a ring of parking lots near the business district, tried last winter experimentally, is believed to be the answer to many of White Plains' parking problems. In addition to easing the basic parking dilemma, the method compels residents of other communities to contribute parking fees to help defray street and parking maintenance costs.

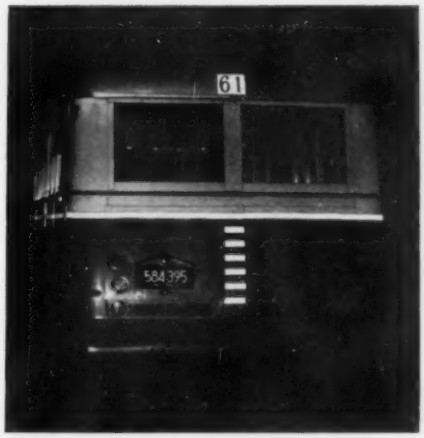
San Angelo's Nickels

D ANGED if I ever pay a nickel to use one of the things." That was the reaction in 1941 when San Angelo installed 594 parking meters, which were an innovation for a city not many years removed from hitching racks and similar customs typical of many West Texas cities. Yet, the first three months and ten days of operation grossed 178,560 nickels or 3½ nickels per capita.

Today there are nearly eight hundred Karpark meters in San Angelo, a city of 50,000.

Wilbur Anderson, superintendent of parking meters, describes the meters' wartime record: "They have done a good job and are as good now as when installed. We figure to use the meters ten years or longer. Repair costs run about 10 cents per year per meter."

A Reflectorized Bus for Safety at Night



"Scotchlite" reflective material reveals the presence of a bus in the darkness.

FOR greater safety in night operations, the Fitchburg & Leominister Street Railway Co. of Fitchburg, Mass., has equipped its buses with strips of "Scotchlite," a reflective material which indicates the presence of a vehicle at night.

F. & L. is believed to be the first transit system to try the material on its buses, although one intercity bus company is reported to use it. In the past, the principal use has been on traffic warning signs.

Two types of "Scotchlite" are available; namely, one which reflects direct light rays, and another which reflects rays from a wider angle. The strips used on F. & L. buses are 2 inches wide and extend completely around the vehicle approximately 5 feet from the ground. The material, manufactured by Minnesota Mining & Manufacturing Co., has a dull gray color in daylight and gives off a green tinted light in the dark. It is laminated to brass plates which are cut in strips and attached to the vehicle. Identification numbers on the buses are similarly treated to make it easier for prospective passengers to read them.

F. & L. officials feel that this measure will greatly increase night safety. A disabled vehicle, especially if its lighting equipment has failed, is a menace to traffic.

Metered Parking in Western Cities

AMONG the more than 750 communities using metered parking to increase the availability of curb space in the business area are three western cities: Coos Bay, Ore., Whittier, Calif., and Greenville, Texas.

Coos Bay has 218 Miller meters with an average revenue of $1.56 per meter per week. Citizens protested the installation in September 1945, but as more parking space became available, objections changed to praise, City Manager Harry C. McCrea writes. To provide free parking and lessen objections to the meters, two city-owned tracts of land situated in the business district were graveled and surfaced.

On December 1, 1945, Whittier installed 300 parking meters in the heart of the business district, covering about four and one-half blocks of congested parking area. The average income from the Mi-Co meters is approximately $90 a day. Between December 1, 1945, and September 1, 1946, the meters earned a total of $24,813.

Parking along Greenville's principal downtown business streets is regulated by 425 parking meters. The Karparks, installed in December 1945, average $2,500 per month, approximately $5.78 per meter. Mayor Garnett S. Lee reports that the meters have helped in a large measure to solve the parking problem in the business district.

Chicago Shuttle Buses

SHUTTLE-BUS service recently installed between the central business district and outlying parking lots in Chicago is designed to reduce downtown traffic congestion, the American Public Works Association notes.

Buses run at 5- and 10-minute intervals between the "loop" and parking lots at Soldiers' Field and Monroe Street. The city-wide 10-cent bus fare is charged for the shuttle service, which is siphoning traffic into the heretofore almost unused Soldiers' Field lot. Shoppers are now spared the search for downtown parking.

Today... ..light is so much a part of living

GOOD community living so often depends on good community lighting. Reduction of avoidable traffic accidents—greater pedestrian safety—less opportunity for holdups and other hazards—are only some of the benefits good street lighting can bring.

Union Metal's new all-steel street lighting standards are designed to meet every requirement of good street lighting practice. These modern, streamlined standards incorporate the new 45-degree upsweep bracket for better distribution of light . . . easier wiring . . . better appearance.

Standardized heights to reach nominal light centers of 20, 25, 30, 35 and 40 feet. When used with fabricated steel transformer bases, 20 inches are added to the overall height. Brackets available in 4, 6, or 8 foot lengths with supporting scrolls, or in 10, 12, 15 and 18 foot mast arms with top, side-sway bracing. Two attractive shaft styles—plain round or octaflute.

For engineering details, write The Union Metal Manufacturing Company, Canton 5, Ohio.

You couldn't buy a better product to save your life.

1906-1946
40 YEARS OF PROGRESS IN THE DESIGN AND FABRICATION OF STEEL PRODUCTS

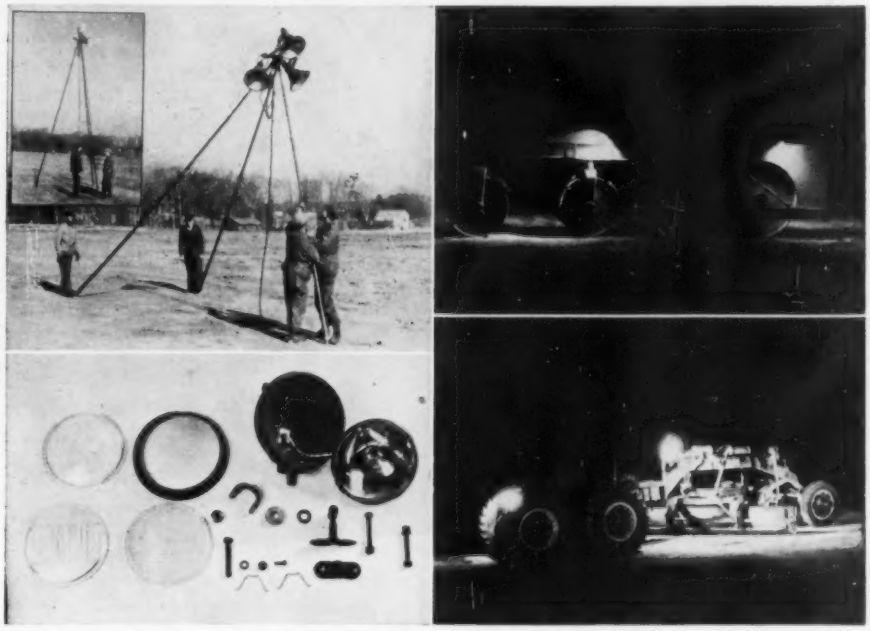
UNION METAL

Largest Producers of Street Lighting Standards

Outdoor Lighting

Lighting Outdoor Construction Work at Night

By OSCAR P. CLEAVER
CHARLES F. CASHELL
FRED J. MILLICAN
The Engineer Board
Fort Belvoir, Va.



UPPER LEFT: *Portable area floodlighting set.* LOWER LEFT: *Component parts of a fixture used as headlight, spotlight, and floodlight on earth-moving equipment.* UPPER RIGHT: *Lighting system for a road roller.* LOWER RIGHT: *Lighting system for a road grader.*

AN URGENT need during the latter phases of World War II for adequate lighting equipment to permit efficient round-the-clock construction of airfields, roads, bridges, prison enclosures, and similar military installations, fostered studies of the visibility problems involved in area floodlighting and individual lighting systems for installation on construction machines. These studies were made under actual field conditions in a long series of night tests with skilled operators.

In field experiments lighting of equal wattage at several heights was studied. Two hundred- to 1,000-watt floodlights mounted in various numbers per pole were used. This resulted in the selection of 750- to 1,000-watt floodlights, mounted at a height of 25 feet, with the light projected on the area from two locations, rather than the alternative of more poles with a larger number of smaller floodlights ringing the area.

Two floodlighting sets were designed to meet the requirements for area illumination—one a portable set employing six 750-watt floodlights and a portable engine-generator, the other a mobile set employing eight 1,000-watt floodlights and a wheel-mounted engine-generator.

The six floodlights of the portable set are mounted at a height of 25 feet on two aluminum tripods having legs which telescope to any length desired down to 5 feet 6 inches. Powered by the standard Army 5-kv engine-generator, this set will illuminate an area of 27,000 square feet to an average intensity of one footcandle. It will illuminate an area of 4,500 square feet to five footcandles. When higher intensities are required or larger areas must be illuminated, additional 5-kw units can be used, or two additional tripods can be powered from a 10-kw engine-generator.

The mobile floodlighting set includes eight 1,000-watt floodlights mounted at a height of 25 feet on two aluminum masts of telescoping design. This set is capable of illuminating 56,000 square feet to an average intensity of one footcandle and 10,400 square feet to five footcandles.

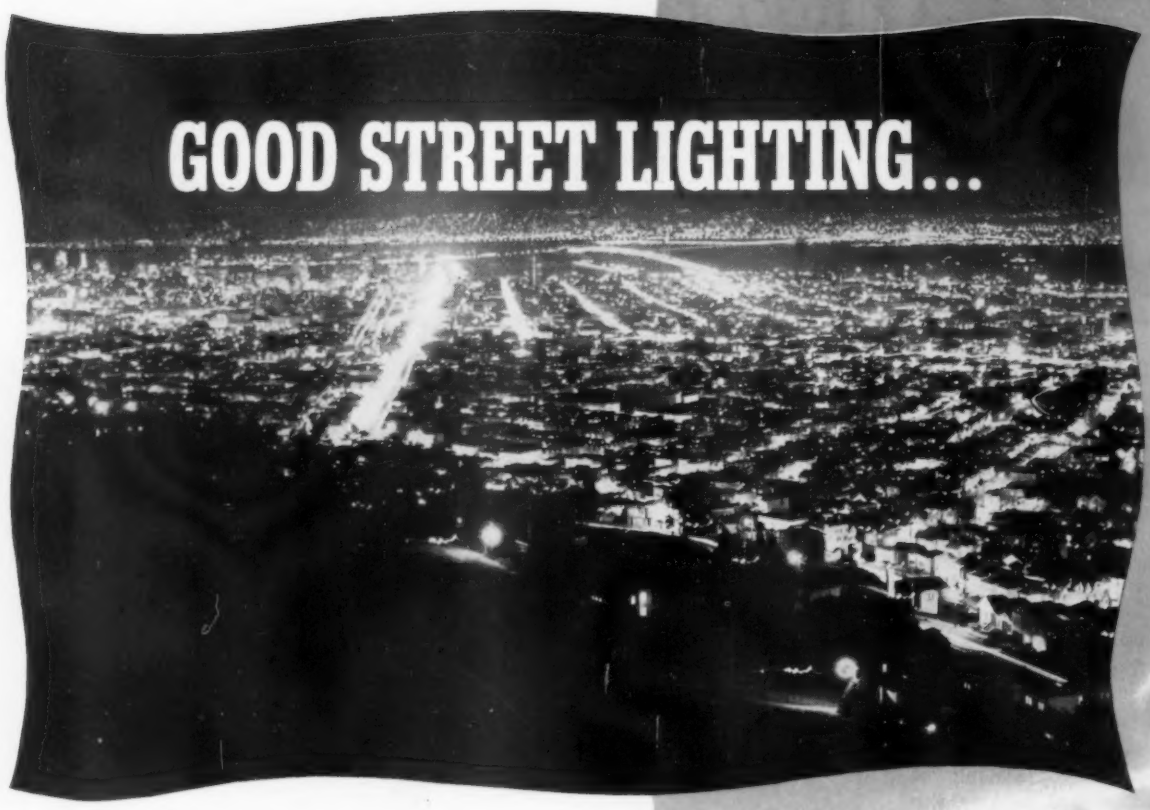
The seeing requirements, coupled with the military essential of using the minimum number of dissimilar parts, indicated that the most desirable type of lighting unit for construction machines would be a small, lightweight fixture of the automotive headlight type, capable of employing 32- to 100-cp lamps, of being converted to headlamp, spotlamp, or floodlamp by a change of lenses and, in the case of the headlamp, by using a socket for two-filament lamps; and of being readily mounted on adjustable brackets.

On the motorized graders, two headlights to provide for distance viewing are located on the slanting fore part of the grader frame; and one headlight for use as a back-up light is mounted on the grader frame at the left rear. Two floodlights with 100-cp lamps, one mounted on each side of and approximately three inches above the panel board of the operator's compartment, illuminate the work plane, the rear and edges of the moldboard, and the forward two rear wheels of the grader. These two floodlights, which normally direct the higher-intensity, 20-by-40-degree areas of their beams parallel to the grader frame, are adjustable to meet the various cutting positions of the moldboard. An adjustable spotlight with integral switch is provided above the right floodlight.

The Buffalo-Springfield road rollers have two headlights, mounted one on the front and one on the rear to provide illumination for movement in either direction, and four floodlights with 50-cp lamps. One adjustable floodlight, with the lens arranged to direct its higher-intensity, rectangular area parallel to the roller, is mounted on the top of the roller on each side, slightly forward of the vertical center line of the front drum. One adjustable floodlight is similarly mounted on the frame on each side of the roller, slightly forward of the center line and above the rear drum (the middle drum for the three-drum roller). These floodlights are so directed that their higher-intensity, rectangular areas are parallel to the roller and cast their illumination forward in the direction of the roller's movement, the ground, and the edge of the drum in order that the operator can judge the proper overlap of successive rolls.

(Continued on page 127)

GOOD STREET LIGHTING...



the sign of a good place to live

SAN FRANCISCO, prior to 1937 had a traffic fatality rate on Market Street and Van Ness Avenue of six people per year. Then improved street lighting was installed. Traffic fatalities dropped to two per year. Net saving—four precious lives and $20,000 annually on only two streets in one city! **Other benefits:** A more attractive community, increased civic pride, improved real estate values, a greater sense of security for local residents—ample evidence that good street lighting really pays off. Is your community realizing all the good from good street lighting?

The Street and Traffic Safety Lighting Bureau, 155 East 44th Street, New York 17, N. Y.

After field tests of lighting systems installed on the machinery, which were conducted over a period of approximately two months under severe weather conditions, the Marine Corps reported that night work of the same quality as that of day work was accomplished at 85% of the day rate of work.

From the engineer's point of view, a combination of area floodlighting and of individual lighting on the machines to highlight the work plane would provide the optimum visibility for construction work if the glare factor were properly controlled.

The generators used for these lighting systems are as follows:

For Caterpillar engines of the Caterpillar tractors, Models D-4, D-7, D-8, and the Caterpillar Model 12 road grader: American Bosch Corporation's generator Model GRA-1250-1400A-201 (12 volt, 40 ampere gear-driven), and regulator Model RGL 12A2.

Mobile area floodlighting set.

For the Galion Model 101-D road grader: Auto-Lite Company's generator Model GDJ 4808 (12 volt, 55 ampere, belt-driven) and regulator VRH 4104.

For the remaining machinery: Auto-Lite Company's generator Model GEG 5101 (6 volt, 40 ampere, belt-driven) and regulator VRY 4203.

For the portable area floodlighting set: 5 kw set manufactured by the D. W. Onan and Sons. Any 5 kw generator set, 110-220 volts, may be used.

For the mobile area floodlighting set: 24-inch power plant, 10 kw, d. c., variable voltage, manufactured by the General Electric Company, using a Hercules Motor Corporation gasoline engine and a General Electric generator. This wheel-mounted power plant was employed to use up surplus property. Any 10 kw wheel-mounted power plant applies.

The manufacturers of the floodlights are as follows:

Machinery floodlights: Guide Lamp Division of General Motors, Model 850.

Excerpts from the paper, "Lighting Systems for Military Construction at Night," presented before the Quebec Convention of the Illuminating Engineering Society in September.

Lighting for Accurate Visibility

THE major purposes of street lighting can be defined broadly as follows:

1. To promote safety and convenience on the streets through adequate visibility after darkness
2. To enhance the community value of the streets
3. To increase the attractiveness of the streets

Underlying all other objectives, the fundamental purpose of street lighting is to produce both quantitatively and qualitatively, the illumination required for accurate, rapid, and comfortable visibility at night.

The past several years have witnessed a major change in the technique of street lighting. Street lighting engineering has become a science.

The engineering principles upon which present and future layouts will be based indicate a tendency to direct more and more of the total output of a given luminaire to the street area to be lighted.

In general, the tendency should be toward greater utilization of the light; however, in certain business districts, where light on the building fronts and on the sidewalk is desirable, it may be permissible to forget efficiency in favor of the old white-way light system.

On residential streets, the principal light should be confined to the street surface, with only sufficient "spill light" to illuminate the sidewalk and approaches to each residence. All direct light (glare) should be prevented from striking the houses at window heights.

On traffic streets, where the principal consideration is public safety, the maximum illumination should be maintained. Therefore, it is desirable to direct even greater percentages of the light to the useful zone.

Distribution Curves

For all types of street lighting luminaires, there is a definite candle power distribution curve and related characteristics of light output. From such data, calculations of illumination intensities produced on streets may be made.

The following discussion of the methods and procedures employed in establishing these distribution curves suggests the usefulness of such data.

The actual lighting performance of the luminaire, from the quantitative standpoint, is indicated by several types of curves. These include the distribution curve and the utilization curve.

A distribution curve is a curve showing the variation of luminous intensity of a lamp, or luminaire, with angle of emission. Most modern street lighting luminaires produce an asymmetric

(*Continued on page* 129)

CLASSIFICATION OF STREETS

Classification	Color Code
a. **Business Streets**	
1. Primary (heavy traffic)	Red
2. Secondary (medium traffic)	Purple
3. Minor (light traffic)	Pink
b. **Traffic Thoroughfares**	
1. Heavy, over 1,200 cars per hour maximum (both directions)	Blue
2. Medium, 500 to 1200 cars per hour maximum (both directions)	Green
3. Light, up to 500 cars per hour maximum (both directions)	Lt. Green
c. **Residential Streets**	Not Colored
d. **Dangerous Intersections**	Yellow
e. **Freeways**—Express Roads and Special Areas	According to traffic classification

ILLUMINATION VALUES

Having arrived at a satisfactory street classification, the next step is to select an illumination value from table below.

RECOMMENDED MINIMUM AVERAGE HORIZONTAL ILLUMINATION (LUMEN PER SQUARE FOOT ON ROADWAY)

Volume of Pedestrian Traffic	Volume of Vehicular Traffic			
	Very Light	Light	Medium	Heavy
Heavy	....	0.8	1.0	1.2
Medium	....	0.6	0.8	1.0
Light or None	0.2	0.4	0.6	0.8

FROM A FORTHCOMING WESTINGHOUSE BOOKLET

Larger cities may use this street classification and illumination values chart in designing new street lighting systems.

TROLLEY COACHES

Come to Toronto

CRITICAL examination of the operation of trolley coaches in numerous other cities by the Commission's officials has satisfied them that the trolley coach has definite advantages over either street car or bus for certain operations; confirmed the fact that it possesses excellent ride characteristics of quietness, comfort and speed, and convinced them that they should be made available to the citizens of Toronto.

The introduction of this new type of vehicle to the citizens of Toronto coincides approximately with the 25th anniversary of the taking over of the local transit system by the Commission. Just as in 1921, the Commission set out to give the best then available in urban transit facilities, so now the Commission's plans for post-war modernization include the provision of the best in the transit facilities of today.

The introduction of the trolley coach is but one of the projected improvements the Commission plans to give to the citizens of Toronto, with the confident expectation that it will be popularly received and mark another stepping stone in the progress of our local transportation.

Reprinted from the September, 1946 issue of "The Coupler," published by the Toronto Transportation Commission.

AS part of a huge transit modernization program, the Toronto Transportation Commission will change over one rail and two combined motor bus and rail lines to trolley coach operation. Fifty 44-passenger trolley coaches have been ordered for service on these lines, which total 20.4 round trip miles. The accompanying news story states very clearly why, after an analysis of operations in numerous other cities, the Commission decided to include these modern electrics in its program.

2690-T

Ohio Brass
MANSFIELD, OHIO
Canadian Ohio Brass Co., Ltd., Niagara Falls, Ontario

distribution of light; that is, the light from the luminaire is not the same in all directions but is directed in two main beams up and down the street or roadway.

Utilization Efficiency Curve

A utilization curve is a measure of the quantity of light striking the ground in front of and behind the luminaire. It is, therefore, a measure of the actual efficiency of the luminaire and is of more value than that of the nominal efficiency, which comprises all the light emitted by the luminaires, including that which goes upward and consequently is of no value in lighting the street or the adjacent ground.

The utilization curve tells how much light strikes the roadway but reveals nothing of the way in which this light is distributed. It must, therefore, be used in conjunction with a distribution curve in order to picture the luminaire's true performance.

The performance of luminaires usually is rated, in terms of efficiency, as that percentage which the total light output bears to the light generated by the lamp. A bare lamp alone will have an efficiency of 100%, whereas the simple act of attaching a reflector or an enclosing globe will result in the loss of some light, with a reduction in efficiency value.

The light emission from an asymmetric luminaire is controlled laterally so as to make the most efficient use of the total light output.

The following factors must be carefully evaluated in designing an installation that will provide, economically, the maximum in traffic safety:

Traffic—Character; speed and volume of vehicular traffic; volume of pedestrian traffic

Type of Street—Classification according to principal use

Dimensions and Design—Width of street and sidewalks; curbs and driveway conditions

Street Surface—Type, color, and reflection characteristics

Buildings—Predominating type and character of use

Transportation—Public transportation facilities (street, railway, or buses)

Traffic Controls—Traffic lights, safety zones, freeways, stop streets, one-way streets and parking regulations and controls

Trees—Presence or absence of trees; location, height, and spread of trees; trimming and regulation of growth of trees

All of these factors, as well as other conditions peculiar to certain localities, must be taken into consideration in determining the correct classification of each street. A complete map of the city, on which the streets may be shown according to classification (preferably by a color code), will be very helpful. The classification shown in the accompanying illustration is suggested for larger cities. For smaller towns this scheme of classification can be simplified.

Phoenix Relights Main Business District

*Five blocks of the main business district of Phoenix, Ariz., **before and after** the introduction of a modern lighting system.*

FIVE full blocks in the main business district of Phoenix, Ariz., have been relighted as a preliminary step in the proposed over-all program covering thirty-five square blocks. The new standards and luminaires replace the system installed thirty years ago.

In the initial project, completed in August 1946, are thirty-four standards spaced 150 feet apart. The poles, 28 feet to the light center, are nearly twice as high as those used previously. The 700-watt lamps are rated at 15,000 lumens.

Union Metal standards and Line Material luminaires are used in the Phoenix lighting program, which eventually is to include 532 standards and will include districts formerly unlighted. The adjacent property owners pay the full installation costs, while the city pays all current costs and maintains the lights.

The over-all project will be broken up into individual projects approximately the size of the present one, which, according to City Electrician Glenn Kiger, is "such a great improvement in the lighting that everyone seems optimistic regarding the rest."

CHECK PARK-O-METER

1. Public Use . . . . . ☐
2. Enforcement . . . . . ☑
3. Service . . . . . ☐
4. Revenue . . . . . ☐

ENFORCEMENT, TOO

Park-O-Meter goes the whole way in performing the enforcement job with reliability and economy. The AUTOMATIC action removes need for instructing the public on "handle setting." It takes the traffic officer off the sidewalk, and puts him on the street, riding a motorcycle where he quickly and easily observes the large red *Expired Time* signal.* He covers more territory, too.

The precision-built Park-O-Meter stands behind the enforcement of your police ordinance. This timer operates on a true-timing escapement principle . . . its accuracy is unaffected by long use, by operating position, by temperature, or other external conditions . . . you can safely base your enforcement program on the precision of the Park-O-Meter Timer.

*Basically, a parking meter functions by displaying a SIGNAL. The Park-O-Meter signal system is designed for efficiency. High visibility is obtained by: Large signal area; Large view windows on both sides, and absence of projections and deep recessing to cause shadows. Signal is observable at a glance day or night. The mechanical action is simple, there being a single operating part.

★

EVERY JOB WHICH A PARKING METER *SHOULD* DO, PARK-O-METER DOES *BETTER*

The Original CARL MAGEE PARKING METER

Magee-Hale PARK-O-METER COMPANY

COMMERCE EXCHANGE BUILDING • OKLAHOMA CITY 2, OKLAHOMA

MACNICK COMPANY • *Manufacturers* • TULSA, OKLAHOMA

Zoning Needs Realism and Honesty

SOME practices of city councils and courts with respect to zoning were condemned as "unrealistic" by Walter H. Blucher, executive director of the American Society of Planning Officials, in a talk before the annual conference of the American Municipal Association held in Chicago on November 18.

"While zoning ordinances are tools in carrying out the community plan for use of land, some ordinances don't make sense," said Mr. Blucher. "In these instances the tool not only serves no useful purpose, but has injured the community due to lack of realism and honesty in zoning."

"Not satisfied with this kind of zoning, far too many city councils are breaking down the zoning ordinance by spot-zoning changes. They listen to the stories of the widows and the orphans; and, of course, every individual case looks bad on its face. Legislative bodies seldom stop to consider that doing somebody a favor or righting an individual wrong may cause great and expensive damage to the neighborhood or to the community."

"In addition to these failures, many zoning boards of appeal and adjustment have forgotten what a zoning variance is; and, under the guise of a so-called variance, they often make zoning changes which are in effect spot-zoning and which really ought to require a legislative act. Unfortunately, the courts do not always have the distinction and in a good many instances have failed to stop this usurption of authority."

Continuing, Mr. Blucher said, "The courts, too, become confused with what is happening to zoning and often substitute their own judgment for that of the legislative, while piously maintaining that they never do such a thing, and make spot-zoning changes. They, too, fail to recognize that an apparent hardship to an individual when righted will wrong a great many other individuals."

Zoning and Planning Notes

***BECAUSE** of the continued illness of Frank B. Williams, editor of the Zoning and Planning Notes in this magazine for the last twenty-four years, that feature is again omitted from this issue.*

However, it will be resumed next month under the authorship of Norman Williams, Jr., a graduate (in 1943) of the Yale Law School, and now a member of the New York bar, associated with the law firm of Paul, Weiss, Wharton & Garrison.

While studying at the Law School, Mr. Williams served as one of the editors of the Yale Law Journal. *As an editorial contributor to THE AMERICAN CITY, he will have the cooperation of Edward M. Bassett and of Frank B. Williams.*

Approval for Australian Site-Value Taxation

RATEPAYERS in six municipalities in Greater Melbourne, State of Victoria, Australia, have voted this year on whether to continue to impose their taxes on the assessed-rental value of properties, or to adopt site-value taxation, under which buildings are exempt from taxation and the rates are levied on site values only. Great interest was taken in these votes, with four of the municipalities deciding in favor of the change, and two voting down the proposal.

The incidence of taxes imposed on assessed-rental values is, in the main, similar to the incidence of taxes levied on the combined value of land and improvements, as in America. Both systems have the effect of imposing the tax burden mainly on properties whose sites have been well improved, and of lowering the taxes that would otherwise be imposed on owners of properties less highly developed. It is claimed in Australia and New Zealand that these systems, by taxing vacant land most lightly of all classes of property, encourage speculation in land values; also, that they are a factor in fostering the development of blighted areas and slums. As there is a housing shortage in both Australia and New Zealand, these factors in the situation are receiving increasing attention. In the states of New South Wales and Queensland, Australia, neither of these two methods is permitted, but the use of site-value taxation is compulsory. In the State of Victoria, municipal home rule permitted the voting mentioned above.

There are twenty-eight municipalities in Greater Melbourne. Previous to the recent votes, nine of these municipalities were using the site-value system; and nineteen, the assessed rental value method of taxation. Ratepayers, therefore, were in the position of being able to compare the incidence of taxation under these contrasting systems of taxation in adjoining municipalities.

One of the two municipalities voting against the change, Footscray, is a large manufacturing, wôrking-class area. Labor is in control of the city council. Although in the other municipalities labor for the most part favored the change, even to the point of circulating the petitions to have the vote, in Footscray the labor interests opposed the change on the ground that it would have the effect of reducing the taxes of a number of large manufacturing plants. Nunawading, the other town, is on the extreme edge of outer Melbourne. The population is small and includes a considerable number of market gardeners who opposed the change.

The four municipalities that approved the change—Box Hill, Moorabbin, Northcote, and Poston—are mainly residential in character. It was shown that site-value taxation would have the effect of reducing the taxes on about 75% of the residences by substantial amounts.

Greater Melbourne has a total population of about 1,200,000. Over half its area is now under site-value taxation. An interesting provision of the State of Victoria legislation is that previous to taking a vote municipalities must ascertain how every ratepayer's taxes would be affected by a change in the system of taxation. This information is then available for taxpayers.

H. BRONSON COWAN

Our December Cover

THE photograph on the front cover shows a group of citizens in Milwaukee, Wis., gathered for a program of carols, church chimes, and singing around a community Christmas tree. The tree was erected by the Milwaukee Bureau of Forestry, with contributions from public-spirited citizens helping to put the program into effect. The tree shown was made from 540 balsams brought down from northern Wisconsin forests.

1ST FOR QUALITY

DUAL—*the automatic Parking Meter*

QUALITY is a definite "First" in every Dual Meter.

Cities that buy on the basis of dependable performance and durability know this . . . and are holding out for DUALS.

Dual engineers are constantly seeking and making important improvements in engineering, construction and performance. The new Dual design is attractively streamlined — weather-proof and tamper-proof—easy to operate and install—economical to service and maintain. *And every Dual has a meter movement manufactured by the makers of the famous Seth Thomas clocks.*

Duals pay for themselves—and provide a long-term source of municipal revenue for other purposes. Learn how your community can benefit with Duals. Write for the informative free booklet—"Metered Parking", or call on our engineers for friendly cooperation.

THE DUAL PARKING METER COMPANY

A subsidiary of The Union Metal Manufacturing Co.

MILFORD BUILDING • CANTON 2, OHIO

WHEN IT COMES TO CONTROLLING PARKING YOU CAN DO IT BETTER WITH DUALS

Recent City Manager Appointments

LT. COL. JAMES D. DICKSON has been appointed manager of Manistique, Mich.

CLYDE DORSEY, former clerk and assessor, has been appointed city manager of Monterey, Calif.

HILL R. HEALAN, county chamber of commerce secretary, was appointed city manager of Cordele, Ga. He succeeds J. C. DOROUGH, who resigned.

T. K. JEFFERIS has been appointed city manager of Grosse Pointe Shores, Mich. ARTHUR H. BENNETT, who has served as manager since 1925, will be retained as consultant until February 1947, when he will retire.

RENE LORD'S appointment as first city manager of Cap de-la-Madelein, Que., becomes effective January 1, 1947.

STEPHEN H. MEEM has replaced W. C. BALLARD as town manager of Bedford, Va.

LESLIE REED has been appointed acting town manager of Northfield, Vt. He will serve until after the March elections.

C. F. TAYLOR, office manager of the gas and water department, has been appointed acting manager of Clearwater, Fla., to serve until after the December election. He fills the vacancy created by F. L. HENDRIX'S resignation on November 4.

SAMUEL E. VICKERS, city manager of Long Beach, Calif., since 1944, became first city manager of Vallejo, Calif., on November 1.

CARL B. WIRSCHING, former president of the Los Angeles Board of Public Works, has been appointed city manager of Long Beach, Calif.

W. R. WOODBURY, city manager of Altavista, Va., 1936-39; Harrisonburg, Va., 1939-43; and Williamsburg, Va., since 1943, has been appointed city manager of Suffolk, Va.

CLARENCE E. RIDLEY
Executive Director
International City Managers' Association
Chicago, Ill.

Good Water for Gloversville

(*Continued from page 77*)

into an early and a late shift, with an overlap taking place on those days when there is work requiring the concerted efforts of all.

The use of slightly less than one grain per gallon of alum is effective in reducing the color from about 30 ppm to about 1 ppm. Despite the use of copper sulphate as an algicide in the reservoirs, taste- and odor-producing substances are detected occasionally in the water received at the plant. Whenever objectionable odors are present, sufficient activated carbon is applied to remove it. After coagulation, the pH of the water drops to about 6.1 but is adjusted before discharge to the clear well to a value of about 7.5 by the application of approximately one grain per gallon of soda ash. The use of about 1 ppm of Calgon minimizes corrosion problems.

On a trial basis, lime has been applied to the Rice and Port storage reservoirs to remove CO_2 from the zone of stagnation and to suppress algae growths. In July 1946, 2,500 lbs. of lime were applied to the Rice storage reservoir, and in August, 1,450 lbs. of lime were applied to the Port storage reservoir. The treatments were successful in eliminating the free carbonic acid and resulted in a sparkling water coming to the plant.

The water at the source is of excellent sanitary quality, many of the samples of pre-treated water being free from coliform organisms in the 10 ml. portions. Consequently, a small amount of chlorine, about 1 ppm, together with about ⅓ ppm ammonia, produces a chloramine residual of 0.12 ppm or more in the treated water. Traces of this residual can ordinarily be observed throughout the active parts of the distribution system.

The operation of the plant is under the supervision of H. C. Chandler, consulting chemist, who makes regular inspections of the supply three times a month and advises on operating problems as they arise.

The future, according to our experiences of the past, will bring varied and interesting water supply problems to the Gloversville Water Works. At the same time, considering our past record, we confidently expect that further progress will be made and that the citizens of Gloversville will continue to enjoy an ample supply of safe, palatable water.

Governmental Research Program Announced

A NEW program of research into governmental affairs and problems of local units of government has been instituted by the Citizens League of Cleveland, together with Western Reserve University. Dr. Karl A. Bosworth, recently appointed professor of political science at the university, will conduct the research program. The university expects not only to include the faculty and students of the department of political science in the projects, but will also draw on its other departments as needed. The program will be in cooperation with the Citizens League. The projects will deal with general aspects of government in Cuyahoga County.

The Municipal Bond Market

Election Results on Bond Issues

SETTING an all-time record, the voters of 312 communities in thirty-two states, during the month of November, authorized a total of $1,043,376,607 of new state and municipal bond flotations.

Contributing largely to the tremendous total were the bonus and veteran aid flotations authorized by several states.

Large authorizations by cities, as reported in *The Bond Buyer*, included: Baltimore, Md., $20,000,000; Providence, R. I., $9,700,000; Omaha, Nebr., $10,233,700; Port of Seattle, Wash., $3,000,000; Canton Ohio, City School District, $2,925,000; and Knoxville, Tenn., $6,000,000.

During November, the voters of 119 cities in twenty-four states rejected proposed bonds aggregating $89,222,816.

Some sales of new issues reported in recent issues of *The Bond Buyer*

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$ 47,000	Rockville Center, N. Y., Street Imp. of 1946	1	2.75 Avg.	.985
60,000	Charles City, Iowa, Swimming Pool	1.25	1-12 Ser.	2.96
102,000	San Mateo Co., Cal., Bayshore Elementary Sch. Dist.	1.25	4-20	1.33
125,000	Alliance, Ohio, Sewer	1.50	10.75 Avg.	1.386
22,000	Wallington, N. J., Street Improvement Assessment	1.50	3.83 Avg.	1.48
100,000	South Hill, Va., Water	1.70	3-22 Ser.	1.655
27,000	Senatobia, Miss., Special Street Imp	1.75	5 Avg.	1.63
65,000	Deer Park, Ohio, Exempted Village Sch. Dist.	1.75	13.50 Avg.	1.673
48,000	Sweetwater, Texas, Water, Hospital, and Street	2.00	10 Avg.	2.37
27,000	Bergen, N. Y., Water Softening Plant	2.00	1-27 Ser.	1.921
35,000	Gaylord, Mich., Water System Revenue	2.75	8/17.5 O.A.	2.872
56,000	St. Clair Shores, Mich., Sewer Spec. Assmt. Dist. No. 3	2.75	8/8.5 O.A.	2.677

Rolling again!

The Mack family—the finest bunch of fire apparatus craftsmen you can find anywhere—is back on the job . . . working together again to produce the nation's outstanding fire apparatus.

To our employees: *"Welcome back."*

To our customers: *"Thanks for waiting."*

Naturally, it will take some time to reach full-scale production again. Many materials good enough to maintain the 36-year standard of quality of Mack fire apparatus still aren't plentiful—but our lines are moving. We'll do our level best to get new Mack fire apparatus and parts to you as soon as possible.

Mack MANUFACTURING CORPORATION

In behalf of its 67 Direct Factory Branches

Municipal Law Notes and Decisions

Prepared by NATIONAL INSTITUTE OF *MUNCIPAL LAW OFFICERS, Washington, D. C.*
Charles S. Rhyne, Executive Director

Airports—Exemption From Taxation—Mere City Ownership Insufficient

Where municipality acquired land for airport purposes but on tax lien date had not yet done any engineering work with respect to property, although subsequently preliminary engineering work was undertaken, and in light of fact that airport, when built, might or might not be entitled to tax exemption tax exemption solely upon fact that city owned property and intended to develop and use it for airport purposes. *Application of City of Marion*, 68 N. E. (2d) 391 (Ohio Bd. of Tax App., June 4, 1946).

Annexation—Sufficiency of Petition Opposing—Competence of Signers

In proceeding for dissolution of city and annexation of territory thereof to City and County of Denver, held that showing by parties objecting to petition for dissolution of city and annexation of its territory to another city that many signers of one section of petition were disqualified or incompetent did not warrant trial court's conclusion that remainder of petition, signed by other persons, whose competence was supported by affidavits, was insufficient. *In re City of Westwood*, 171 Pac. (2d) 770 (Colo., July 15, 1946). *Reh. den.* Aug. 5, 1946.

Assessments—Paving of Streets—Unpaved Portion of Subjecting to

In action to enforce local assessment of town lot, held that where municipality did not pave an avenue 70 feet wide to the extent of its entire width but left unpaved a grass-grown strip some 15 feet wide between the concrete pavement on the sidewalk and the private property line of lots abutting on both sides of the avenue, lots were "abutting the street" within meaning of statute so as to be subject to assessments for improvement. *Town of De Quincy* v. *Wood*, 27 So. (2d) 314 (La., Mar. 18, 1946). *Reh. den.* June 14, 1946.

Bridges—Construction by City—State Highway System—Vested Right of City to

Power of state over municipalities and property owned by them is practically absolute so that statute passed pertaining to state operation of certain bridges and designation thereof as part of state highway system, subsequent to erection of bridge by municipality, did not encroach upon any vested right of municipality, there being no such thing as vested right in municipality as against exercise of sovereign power of state. *Baier* v. *City of Saint Albans*, 39 S. E. (2d) 145 (W. Va., Feb. 5, 1946).

Building Permits—Attack on Building Code in Mandamus Proceeding to Compel Issuance of Permit

In mandamus proceeding to compel superintendent of buildings of City of Elizabeth to issue building permit, held that municipal ordinance amending building code, and a resolution of municipal board of public works directing municipal superintendent of buildings to issue building permits to applicant for construction of apartment houses, could not be attacked collaterally in mandamus proceeding by applicant against superintendent of buildings to compel superintendent to issue such permits. *Bryan* v. *Fromm*, 48 Atl. (2d) 703 (N. J., Aug. 29, 1946).

Drains—Liability of City for Constructing so as to Discharge Surface Water on Other Property

In action against County, Town of Oyster Bay, and railroad company for damages caused by discharge of surface water on land, held that city and county, which in order to relieve flooding of certain premises on occasion of severe storms constructed a drain causing such flood waters to flow upon property of a country club and then onto plaintiff's land which had not before suffered such damage, were liable for resulting damage. *Giovitto* v. *Nassau County*, 63 N. Y. S. (2d) 864 (N. Y. Sup. Ct., Nassau Co., June 15, 1946).

Interstate Commerce—Temporary Storage En Route—Shipping Shortage

Where goods purchased from manufacturers and dealers by taxpayer, doing business outside of California, for shipment to Hawaii but which because of shortage of shipping space during war was stored temporarily in warehouses in San Francisco until shipping space was available, held that goods were within protection of commerce clause and were not subject to personal property taxes in California. *Von-Hamm-Young* v. *City and County of San Francisco*, 170 Pac. (2d) 940 (Cal. App., June 27, 1946). *Reh. den.* July 27, 1946.

Notice of Claim—Failure to File Within Statutory Period

In action for damages for personal injuries allegedly sustained when plaintiff stepped on defective top of sewer manhole, held that where plaintiff did not file with commission written notice of injury within 90 days after injury as required by statute, a suit could not be maintained. *Neuenschwander* v. *Washington Suburban Sanitary Commission*, 48 Atl. (2d) 593 (Md., July 23, 1946).

Ordinances—Blanket Adoption of State and Common Law Crimes by—Uncertainty

In appeal from convictions for driving automobile while under influence of liquor and for storing and possessing alcoholic liquors, held that an ordinance providing that all acts constituting statutory or common law crimes should also constitute offenses against town was void for uncertainty. *Town of Conway* v. *Lee; Same* v. *Drayton*, 38 S. E. (2d) 914 (S. C., July 8, 1946).

Policemen—Reemployment Privileges of Service Volunteers—Discrimination

Where Civil Service Commission granted leaves of absence from Denver city and county police department to members who were drafted or were about to be drafted, and refused such leaves to volunteers in no immediate danger of being drafted, held that such action disregarded public policy, intended to guarantee the same re-employment privileges to draftees and volunteers alike and in effect discriminated against volunteers. *Hanebuth* v. *Patton*, 170 Pac. (2d) 526 (Colo., June 10, 1946).

Public Officers—False Accounts—Fraudulent Intent Required

Under statute providing that an officer who "knowingly" keeps any false account or makes any false entry or erasure in any account of money received by him is guilty of an offense, word in quotes imports something more than carelessness and signifies guilty knowledge or evil or fraudulent intent, and evidence did not sustain conviction of Town of Afton supervisor of misappropriation of public funds and falsification of accounts as public officer. *People* v. *McHugh*, 63 N. Y. S. (2d) 319 (N. Y. App. Div., June 26, 1946).

Sidewalks—Ordinance Prohibiting Driving Vehicles on—Conviction Under

In conviction for violation of city ordinance prohibiting all persons from driving motor vehicles over any sidewalk, held that such ordinance was reasonable and valid exercise by city of power given it by Legislature to regulate use of streets and sidewalks and traffic thereon. *City of Elmhurst* v. *Buettgen*, 68 N. E. (2d) 278 (Ill., May 21, 1946).

Solicitors—Magazine Subscriptions for Future Delivery—Discrimination

San Francisco ordinance prohibiting solicitation on any public street or sidewalk of street and sidewalk traffic for sale of magazine subscriptions for future delivery does not deny equal protection of law as discriminatory, in that it distinguishes between immediate sales and sales for future delivery, nor because members of Jehovah's Witnesses are permitted to solicit subscriptions for their publications. *Exparte Mares*, 171 *Pac.* (2d) 762 (Cal. App., Aug. 19, 1946).

Taxation—Realty Purchased from Federal Government Not Exempt When Title Retained in Government

Where purchaser of land from federal government, under executory installment contract whereby title to land was retained by government until purchase price was paid and other conditions performed, was let into possession and thereafter used property for private purposes, held that property lost its exemption from state and municipal taxes under state law, notwithstanding that government retained legal title for security purposes. *Bancroft Inv. Corporation* v. *City of Jacksonville*, 27 So. (2d) 162 (Fla., Jan. 15, 1946).

Tunnels—Construction by City Injuring Building Owners

In an action against City of Chicago to recover moneys allegedly expended by plaintiffs for construction of caissons and the taking of other protective measures about their building on ground that the construction and protective measures were necessary because of construction of subway tunnels by city, held that city was liable for such construction. *Gillette* v. *Healy Subway Const. Corp.*, 67 N. E. (2d) 887 (Ill. App., June 26, 1946).

Water—Collection of Funds by Board—Duty to Turn Over to City Treasurer

Where board of water commissioners of city had duty under statute to turn funds collected by it over to city treasurer, held that fact that practice in past had been to permit board to obtain funds received by it for water service did not authorize a continuance of such practice since a usage contrary to statute is void. *Mayor of Haverhill* v. *Water Commissioners of Haverhill*, 68 N. E. (2d) 188 (Mass., June 29, 1946).

EXPANDS USE OF KARPARKS

Original installation of 700 now expanded to 1320 KARPARK Automatic Parking Meters

Seven years of successful operation demonstrated the advantages of expanding the meter parking system of Flint, Michigan. To double check the original choice of KARPARK meters, city officials, with the special technical facilities of an automobile manufacturing center at their command, made exhaustive, widely publicized tests. Again, KARPARK came through with flying colors. The best test of all—highly successful actual use—made the matter conclusive. A word from farsighted city officials will bring the list of reasons why KARPARK proved to be the wise choice.

KARPARK *Automatics*

KARPARK CORPORATION, CINCINNATI 6, OHIO

KARPARKS ARE MANUFACTURED BY THE HERSCHEDE HALL CLOCK CO.

OK ON THE DOTTED LINE

The contract for KARPARK Automatic Parking Meters is final conclusive evidence of fully approved performance.

This agreement made and entered into by and between the Karpark Corporation, a Delaware Corporation, hereinafter called the "Company", party of the first part, and the City of Flint, Michigan, a Municipal Corporation, hereinafter called the "City", party of the second part, witnesseth:

Whereas the City of Flint previously solicited proposals from various manufacturers of parking meters, and

From among various competitive proposals.

2. The City agrees to purchase from the Company, and the Company agrees to sell to the City approximately 1320 meters, in two lots as set forth in the Company's proposal, it being agreed however that the number of meters included in Lot 2 may be increased by as many as 10%, and that the purchase conditions pertaining to Lot 2 meters shall apply as to the increased number.

3. It is further agreed as to the trade-in allowances concerned.

KARPARKS are selected in expanding meter parking system.

Witnesses:

KARPARK CORPORATION, a Delaware Corp.
BY _____ Pres.

THE CITY OF FLINT, MICHIGAN
BY: _____ MAYOR
_____ CLERK

Approved as to Form:
_____ City Attorney

Approved as to Funds:
_____ Director of Finance

Decision is officially approved.

Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

Dec. 17-20—Los Angeles, Calif.
AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Meeting (Biltmore Hotel). Exec. Sec., Hal H. Hale, 1220 National Press Bldg., Washington, D. C.

*Jan. 15-18—New York, N. Y.
AMERICAN SOCIETY OF CIVIL ENGINEERS. Annual Meeting (Commodore Hotel). Sec., William N. Carey, 33 West 39 St., New York 18. N. Y.

Jan. 17—New York, N. Y.
NEW YORK STATE SEWAGE WORKS ASSOCIATION. Annual Meeting (Henry Hudson Hotel). Sec.-Treas., A. F. Dappert, State Dept. of Health, Albany, N. Y.

Jan. 17—New York, N. Y.
AMERICAN WATER WORKS ASSOCIATION—NEW YORK SECTION. Mid-Winter Luncheon Meeting (Commodore Hotel). Sec.-Treas., R. K. Blanchard, 50 W. 50 St., New York 20, N. Y.

*Jan. 18-19—Providence, R. I.
AMERICAN INSTITUTE OF PLANNERS. Annual Meeting (Biltmore Hotel). Exec. Sec., Draveaux Bender, 77 Massachusetts Ave., Cambridge 39, Mass.

Jan. 20-22—Washington, D. C.
UNITED STATES CONFERENCE OF MAYORS. Annual Conference (Hotel Statler). Exec. Dir., Paul V. Betters, 730 Jackson Pl., Washington, D. C.

Jan. 27-30—Chicago, Ill.
ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC. Annual Convention (Hotel Stevens). H. E. Foreman, 1227 Munsey Bldg., Washington, D. C.

Feb. 3-6—Lafayette, Ind.
PURDUE SCHOOL OF CIVIL ENGINEERING. Annual Road School (Memorial Union Bldg. and Armory). Ben. H. Petty, Prof. Highway Engineering, Purdue University, Lafayette, Ind.

*Feb. 10-13—College Station, Texas
TEXAS WATER WORKS AND SEWERAGE SHORT SCHOOL. Annual Meeting (Texas A. & M. College). Sec., V. M. Ehler, Austin, Texas.

Feb. 11-14—St. Louis, Mo.
COMMUNITY CHESTS AND COUNCILS, INC. Annual Convention (Hotel Statler). Exec. Dir., Ralph K. Blanchard, 55 E. 44 St., New York.

*Feb. 17-20—Chicago, Ill.
AMERICAN ROAD BUILDERS' ASSOCIATION. Annual Convention (Palmer House). Engr.-Dir., C. M. Upham, 1319 F St, NW, Washington.

*Feb. 20—New Brunswick, N. J.
AMERICAN WATER WORKS ASSSOCIATION—NEW JERSEY SECTION. Winter Meeting (Hotel Roger Smith). Sec., C. B. Tygert, Box 178, Newark.

*Feb. 25-27—Grand Rapids, Mich.
CONFERENCE ON HIGHWAY ENGINEERING. Annual Meeting (Pantlind Hotel). Sec., R. L. Morrison, University of Michigan, Ann Arbor, Mich.

National Municipal League Elects Charles Edison

CHARLES EDISON, former Governor of New Jersey, was elected president of the National Municipal League at its 50th anniversary meeting in Philadelphia last month. Re-elected vice-presidents were Dr. George H. Gallup, of Princeton, N. J., and James W. Clise, of Seattle, Wash.

New members to the League's council include Philip H. Cornick and Joseph D. McGoldrick, of New York; Frederick E. Baker, of Seattle; Herbert Emmerich, of Chicago; Cyril G. Fox, of Philadelphia; Max E. Friedmann, of Milwaukee; Lloyd Hale, of Minneapolis; and H. J. Heinz, of Pittsburgh.

Considerable attention was devoted at the convention to the problem of securing citizen interest in local government and improving school educational programs so that the importance and understanding of municipal affairs will be emphasized.

Other stimulating meetings of interest to local officials included discussions on urban redevelopment, municipal finance, metropolitan coordination, and public employe unions and strikes. Among the nationally-known persons who spoke at the convention were David E. Lilienthal, chairman, Atomic Energy Commission; Harold W. Dodds, president, Princeton University; George H. Gallup, director, American Institute of Public Opinion; Murray Seasongood, former mayor of Cincinnati; Charles Edison, former governor of New Jersey; DeLesseps S. Morrison, mayor of New Orleans; and Newbold Morris, former president, New York City Council.

Cleveland Housing Projects Promote Racial and Religious Understanding

THE Cleveland Metropolitan Housing Authority, under the leadership of its director, Ernest J. Bohn, is doing something specific about helping promote better relations between races and religions, which in some communities have been strained during the war years.

In the Berea Homes Project, whose inhabitants represent a diversity of races, creeds, and nationalities, a Sunday School completely free of denominational anchorage has been in operation for more than a year. There is nothing Presbyterian, Methodist, Lutheran, or any other sect about it. It is a Sunday School for Berea Homes. Negroes, Japanese-American, and American children get along harmoniously. The Sunday School teachers are residents of various faiths.

In the Lake Shore Village project at Euclid, both Catholics and Protestants meet for worship under the same roof and at the identical hour on Sundays in the community house of the Cleveland Metropolitan Housing Authority—with just a wall partition separating the two groups. The arrangement has developed because other meeting-place facilities in the neighborhood proved inadequate. Obviously the close cooperation and teamwork shown between the two religious groups in the Cleveland housing project serves as an example which other cities with housing projects might consider.

The Creed of a City Club

A CIVIC organization that is just starting on its second third of a century of active life is the City Club of Cleveland, Ohio. "Here," as the Club's weekly bulletin points out, "is an organization that makes headlines, gets the radio broadcast time and influences opinion in our community, but it preserves its independence—takes no sides, sponsors no causes. On its forum it presents the best qualified speakers to discuss important, controversial questions, and the members make their own decisions."

"Membership in the City Club is something to boast about, and its Creed is something to memorize:

I hail and harbor and hear men of every belief and party; for within my portals prejudice grows less and bias dwindles.

I have a forum—as wholly uncensored as it is rigidly impartial. 'Freedom of Speech' is graven above my rostum; and beside it, 'Fairness of Speech.'

I am the product of the people, a cross section of their community—weak as they are weak, and strong in their strength; believing that knowledge of our failings and our powers begets a greater strength. I have a house of fellowship; under my roof informality reigns and strangers need no introduction.

I welcome to my platform the discussion of any theory or dogma of reform; but I bind my household to the espousal of none of them, for I cherish the freedom of every man's conviction and each of my kin retains his own responsibility.

I have no axe to grind, no logs to roll. My abode shall be the rendezvous of strong but open-minded men, and my watchword shall be 'information', not 'reformation.'

I am accessible to men of all sides—literally and figuratively—for I am located in the heart of a city—spiritually and geographically, I am the city's club—The City Club."

IT'S HERE!...

THE MOST ADVANCED TRACTOR IN ITS POWER CLASS

Allis-Chalmers HD-5

NOW! . . . A *NEW* SMALLER TRACTOR WITH BIG TRACTOR DESIGN, BALANCE AND STAMINA

- Engineered Completely New Throughout
- 37.4 Drawbar hp.
- Five Speeds — 1.46 to 5.47 m.p.h.
- Weight: 44-inch Tread 10,750 lbs.
  60-inch Tread 11,250 lbs.
- 1,000 Hour Lubrication — Truck Wheels, Idlers, Support Rollers
- 2-Cycle Diesel Power
- Full Visibility; Comfortable Seat; Readily Accessible Controls
- Simplified Maintenance
- More Traction, More Ground Contact, Better Balance

IT'S RUGGED! — IT'S TOUGH! — IT'S DEPENDABLE!

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Municipal and Civic Publications

Atomic Bombs and Cities

THE EFFECTS OF ATOMIC BOMBS ON HIROSHIMA AND NAGASAKI.—*The United States Strategic Bombing Survey. U. S. Government Printing Office, Washington, D. C.* 1946. 46 *pp.*

The horrible effects and awesome power of the atomic bomb are fully described in this official document based on first-hand observations and data gathered by the staff of the Strategic Bombing Survey in Japan.

The report reveals that, in the event of atomic warfare, the larger cities of this country would be especially vulnerable and would have huge casualty rates. To minimize the destructiveness of atomic attacks, the report recommends the provision of sheltered areas, active civilian and military defense units, and dispersal and decentralization of national centers of activity. It is suggested that various regions of the country strive for balanced economic development wherever naturally possible.

Concluding, the survey states that to avoid destruction the surest way is to avoid war, and that as the developer and exploiter of the atomic bomb our nation has a responsibility, which no American should shirk, to lead in establishing and implementing the international guarantees and controls which will prevent its future use.

Planning for Child Care and Recreation Centers

COMMUNITY AND RECREATION CENTER.—*By Hugo Wolter, Recreation Consultant for United Projects Engineering, 55 Liberty St., New York 5, N. Y.* 1946. *Mimeo. Plans.* 20 *pp.*

Helpful booklet outlining the need for a community center in the average municipality and presenting plans and stages of development for such a center. The author has long been concerned with recreation problems and was in charge of recreational organization in Washington, D. C. during the war, so he is familiar with the many aspects of group recreation. The center plan outlined should be of interest to communities which are considering such a center or have already decided to build.

THE CHILDREN'S CENTER OF THE BRONX.—*By Hugo Wolter. Presentation of United Project Engineering, 55 Liberty St., New York 5, New York.* 1946. *Mimeo. Plans.* 20 *pp.*

This presentation recommends the building of a specific child care center in the Bronx, N. Y. The general outline and more detailed plans are easily adaptable to a center for any community. In addition to the plans of the building, the study outlines the program of activities, the facilities, and various features of the policies of the center. Also included is a brief analysis of the need for a similar project at Coney Island.

Detroit Recreation Report

PROPOSED SYSTEM OF RECREATIONAL FACILITIES. *City Plan Commission, Detroit, Mich.* 1946. 36 *pp.*

Outlining in simple terms Detroit's needs for adequate recreational facilities, and offering a rational scheme for satisfying these needs, this attractive, amply-illustrated booklet stresses the need for recreation facilities available to all the people in the metropolis. Excellent diagrams offer specific suggestions for the use of the desired space. It is proposed that the program will be spread over a 20-year period, and that the costs at prevailing prices will be just a little over the price of one cigarette a day for each income producer. The pamphlet concludes with the question, "Can you afford a cigarette a day for an adequate recreation program?"

Building New Towns

GREENBELT CITIES, THE BRITISH CONTRIBUTION. —*By F. J. Osborn. Faber and Faber Limited, 24 Russell Square, London, W.C. 1.* 1946. 191 *pp.* $3.75. *Available through Ryerson Press, 299 Queens St., Toronto, Canada.*

Inspirational and persuasive are the two adjectives which best describe this review of the garden city movement. Mr. Osborn took part in building both Letchworth and Welwyn. He describes their planning, finance, industry, local government, and social and cultural development. He considers the practical lessons to be learned from these experimental, completely planned towns, and suggests ways of applying their experience and improving upon their achievements.

To Mr. Osborn's point of view, there is no social issue more important than that of the size of towns and the disposition of towns in relation to the countryside. His chief concern is securing space for human development. At the same time, he shows that it can and has proved practical from a business standpoint and from a national standpoint to build new towns, consciously planned from scratch, instead of extending existing urban masses by adding on suburb after suburb.

An appendix is included in the book showing how Ebenezer Howard's concept of greenbelt cities has its historical antecedents among such men as Moses, Ezekiel, Plato, Aristotle, Sir Thomas More, and Robert Owen.

British Local Government

A HISTORY OF LOCAL GOVERNMENT.—*By K. B. Smellie. George Allen and Unwin Ltd., Ruskin House, 40 Museum Street, London, W.C. 1.* 192 *pp.* 1946. $1.75.

A review of essential changes in structure, in areas, and in the relations between local and central authorities of Britain from 1832 to 1944. A separate chapter is included on London government, and an introductory chapter on local government between 1689 and 1832 in England.

The author's thesis is a hopeful one and should be of interest to local officials everywhere: "Local government has been established to make life possible; it could be used to make life good."

Case Study of a Housing Authority And Race Discrimination

RACE FEAR AND HOUSING IN A TYPICAL AMERICAN COMMUNITY.—*By William L. Evans, National Urban League, 1133 Broadway, New York 10, N. Y.* 1946. 45 *pp.* 25 *cents.*

Unlike the usual run of publications full of glowing compliments about the satisfactory work of particular housing authorities, this pamphlet is a statement of the part which one upper New York State local housing authority has played in promoting racial tension and resentment through its insistence on complete segregation of Negroes in all its housing projects. The situation has become acute because of the overcrowded living conditions of the Negroes.

According to the author, the pamphlet "presents the facts of a local housing controversy in order to indicate how a local community can be divided into racial, religious and political pressure groups motivated by prejudice and bigotry engendered by a local Housing Authority." The point is made that Negroes are not the only victims of residential segregation. The pattern, once set, the author declares, can be applied to any minority whenever the majority acquires the power to enforce its will.

Favorable reports from a number of northern and western cities show that racially-mixed housing is possible without conflict or friction.

Sewage Sludge Utilization

UTILIZATION OF SEWAGE SLUDGE AS FERTILIZER. —*A manual issued by the Federation of Sewage Works Assns., 325 Illinois Bldg., Champaign, Ill.* 120 *pp.* 75 *cents to members of the Federation,* $1.25 *to non-members,* 15% *discount on purchases of* 300 *or more.*

A guide listing advantages and limitations of sludge as an agricultural fertilizer in which the Federation modifies somewhat its previous stand that sludge is merely a "conditioner" and holds that it has certain fertilizing values. The report discusses soil requirements, the contents of fertilizer elements in all types of sewage sludge, experimental results, methods of processing and applying sludge for soil conditioning purposes, hygienic aspects, and economic factors." The manual also contains much analytical and statistical data as well as forty-five numbered tabulations. A bibliography of 251 references is included.

The Nation's Rivers

MANAGING OUR RIVERS.—*State Government, September* 1946. *Vol. XLX, No. 9. Council of State Governments, 1313 East 60 St., Chicago 37, Ill.* 1946. 24 *pp.* 35c.

The entire September issue of *State Government* is devoted to the problem of river improvement and the work of waterways commissions throughout the country. The study includes an introductory article by Abel Wolman and reports by the chairmans of the various interstate commissions on waterways. The reports cover the Connecticut, Delaware, Potomac, Savannah, Lower Mississippi, Tennessee, Ohio, Missouri, Colorado, and Columbia rivers.

Science and Engineering in Our Society

THE ENGINEER IN SOCIETY.—*By John Mills. D. Van Nostrand Co., Inc., New York, N. Y.* 1946. 196 *pp.* $2.50.

Survey of the problems that face the engineers and scientists in a society of business, finance, and politics. The author argues that if the scientist and engineer played his part in molding society the whole character of our civilization would probably be different. He feels that the scientist must apply to problems of human relations—social, economic, and political—the scientific method, "discarding the prejudices of his early environment and the fallacies of his general education." Then, when he has found the truth, he must persuade society to recognize it as such.

The job Mr. Mills sets forth for the scientist is not an easy one, but he feels that if it is to be done at all it can best be done by engineers and men of science. He analyzes various aspects of industrial engineering today and points out the conditions that must be improved and the obstacles to be overcome in preparing the way for such service to society.

Investment Housing in Illinois

INVESTMENTS BY INSURANCE COMPANIES IN HOUSING PROJECTS.—*Research Department, Illinois Legislative Council, Springfield, Ill.* 1946. *Mimeo.* 16 *pp.*

An excellent and concise statement reviewing investment housing activities of insurance companies, and the legislation, enacted and proposed, which will make possible increased participation by insurance companies in the construction, ownership, and operation of medium rental housing projects. The report deals specifically with the situation in Illinois, but also provides much general information which should be of value elsewhere.

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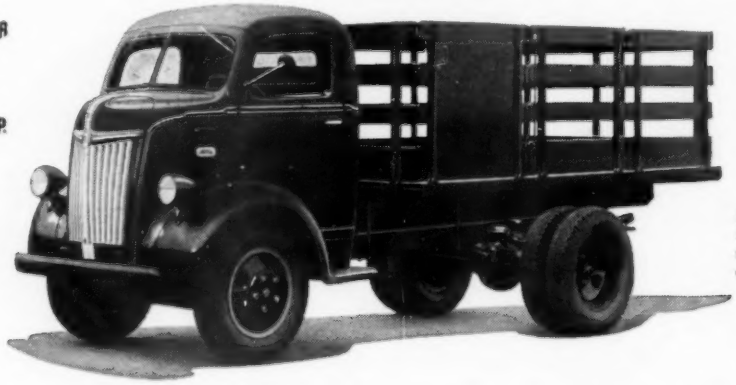

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Appraisal Technique for Urban Housing

MEASURING THE QUALITY OF URBAN HOUSING ENVIRONMENT: A NEW APPRAISAL TECHNIQUE.—*By Anatole A. Solow, Research Associate, Committee on Hygiene of Housing, American Public Health Association. Article in* The Journal of Land and Public Utility Economics, *121 South Pinckney St., Madison, Wis. August,* 1946. $1.50 *a copy.*

This article describes a technique developed by the Committee on the Hygiene of Housing, American Public Health Association, for measuring the quality of existing urban housing. Special features of the technique, summarized by the author, are: (1) Recording of all conditions which are known to affect health and safety, with emphasis on items which are qualitative rather than descriptive; (2) Field schedules and instruction which permit the objective reporting of these conditions by quantitative measures or by consistent observation by different enumerators and at different seasons of the year; (3) A rating method in terms of numerical penalty scores assigned to specific deficiencies and summed up in an over-all penalty expressing total quality of environment; (4) Systematic office procedures including rating forms and tables for rapid and easy processing of the collected data; and (5) Guides for the analysis and graphic presentation of significant findings based on the rating method.

The article states that the method offers a standard yardstick for measuring the housing defects of our urban communities, and should become a standard tool in the hands of all agencies concerned with housing.

(Reference is also made to this yardstick of housing needs in an article by Allan A. Twichell, THE AMERICAN CITY, June 1945, page 96.)

Omaha Development Program

IMPROVEMENT AHD DEVELOPMENT PROGRAM.—*Mayor's City-Wide Planning Committee, 603 City Hall, Omaha, Nebr.* 1946. *Illus.* 286 *pp.*

Comprehensive study and recommendations for the improvement and future development of Omaha prepared by a special Mayor's City-Wide Planning Committee. The planners study every phase of Omaha's life and living facilities and make extensive proposals for a long-range development program. The projects suggested are placed in three categories for convenience in financial planning: urgent, necessary, and desirable and include transportation terminals, airport development, civic center, housing and slum elimination, municipal garage, parks and playgrounds, public market transportation development, and many others which call for attention and action.

Bibliography of Boston's Growth

THE BOSTON METROPOLITAN DISTRICT: ITS PHYSICAL GROWTH AND GOVERNMENTAL DEVELOPMENT.— *By Katherine McNamara. Bureau for Research in Municipal Government, Harvard University, Cambridge, Mass.* 1946. *Mimeo.* 197 *pp.*

Bibliography of references on the governmental developments and attendant problems of urbanism in Boston from 1784 through 1945. The items, numbering about 1500, are arranged both topically and chronologically for quick and easy reference.

Civic Award Suggestions

THE DETROIT CIVIC AWARD.—*Bureau of Governmental Research, Detroit, Mich.* 1946. 12 *pp.*

Pamphlet listing the winners in the Detroit Civic Award contest sponsored by the Bureau of Governmental Research to stimulate citizen participation in civic improvements. The $2,500 award was divided into prizes to be given to city and school employes for the best plans for efficiency and economy of municipal services. (See THE AMERICAN CITY, March 1946, page 5).

Text on Public Administration

PUBLIC ADMINISTRATION.—*By John M. Pfiffner. The Ronald Press Company, 15 E. 26 St., New York, N. Y.* 1946. 621 *pp.* $5.00.

Representing a complete revision and expansion of the 1935 edition, this volume is also designed essentially for use as a college textbook at the undergraduate level. However, although covering the public administration field in scholarly fashion, the book is easy to read and should be useful to others.

Its contents include sections on the following subjects: Organization and Coordination, Planning and Research, Personnel, Finance, Administrative Law, and Public Relations. A chapter is also devoted to a discussion on the public administrator's role in modern civilization and culture.

City officials wanting to review developments and the growth of concepts in public administration will find that this book meets their needs. Selected readings are included at the end of each chapter.

Public Administration Training Programs

EDUCATIONAL PREPARATION FOR PUBLIC ADMINISTRATION: A LIST OF COLLEGES AND UNIVERSITIES OFFERING PROGRAMS OF TRAINING.—*Public Administration Clearing House,* 1313 *East* 60 *St., Chicago* 37, *Ill.* 1946. *Mimeo.* 19 *pp.* 10c.

This pamphlet contains a listing prepared for veterans and others who wish information about academic training in public administration. It indicates the type of program, degrees granted, and chief instructors of the educational institutions included.

Municipal Problems 1946

MUNICIPAL PROBLEMS 1946. *Thirty-seventh Annual Proceedings of the Conference of Mayors and Other Municipal Officials of the State of New York. Rochester, N. Y.* 1946. 143 *pp.* $1.25.

A number of addresses and papers which should be of general interest to local officials may be found in these proceedings. The contents include such topics as municipal airport planning, veteran's preference and veterans' rights under civil service, the New York State assistance program, solving parking problems, and modernizing municipal building codes.

Cases for Decentralization

CITIES ARE ABNORMAL.—*Elmer T. Peterson, Editor. University of Oklahoma Press. Norman, Okla.* 1946. 263 *pp.* $3.00.

Twelve contributing experts in fourteen assembled articles take 263 pages to state that decentralization is desirable. No definite proposals are advanced as to how decentralization is to take place, nor how existing communities can be made better places in which to live. For those who may not be enlightened, it is pointed out repeatedly in the book that big cities are inefficient, ill-planned, cause unemployment, lowered birth rates, and nervous and physical disorders.

Several of the individual articles are good, but the sum total of what they have to say represents little that is new or constructive. The book may be of value, however, in increasing the determination of civic leaders to do something—even though they must look elsewhere for suggestions as to just what to do.

C. E. C.

Municipal Revenue Problem

THE LOCAL REVENUE PROBLEM.—*American Muncipal News. September* 9, 1946. *American Municipal Association,* 1313 *E.* 60 *St., Chicago* 37, *Ill.* 2 *pp.*

An analysis of the new revenue proposals being considered by municipal officials throughout the country. Increased tax assessments, new sales taxes, income-payroll taxes, utility taxes, garbage collection fees and occupation taxes are among the suggested solutions to the problem.

Suggested Prison Standards

MANUAL OF SUGGESTED STANDARDS FOR A STATE CORRECTIONAL SYSTEM.—Prepared by the *Committee on the Model State Plan, Sam A. Lewisohn, Chairman, The American Prison Association,* 135 *East* 15*th St., New York* 3, *N. Y.* 1946. 45 *pp. A limited number of copies are available without charge on application to the Association.*

This manual outlines accepted standards of procedure concerning the organization and functioning of a state correctional system.

Mr. Lewisohn writes in the foreword that it is in no sense to be considered the last word or "cure-all" in the treatment of the adult offender. However, it is representative of the most progressive thinking of recent years as enunciated by the American Prison Association, its affiliated organizations, and other reputable leaders and agencies in the correctional field.

Chapters are included on Scope of the State Correctional System, Central Administration, Probation, and Diversification of Institutions, as well as on all the many activities of well-run correctional institutions. A declaration of principles, representing the philosophy of the American Prison Association, is also a part of the manual.

[For an account of some recommendations made by Mr. Lewisohn in an address as President of The American Prison Association, see page 92 of this issue.]

Manager Government Report

MANAGER GOVERNMENT IN PENNSYLVANIA MUNICIPALITIES.—*By Charles F. LeeDecker, Institute of Local Government, Pennsylvania State College, State College, Pa.* 1946. 28 *pp.* $1.00.

This booklet traces the growth of city manager government and points out the desirability of further legislative enactment in Pennsylvania to allow the citizens of a community to adopt the manager plan by referendum.

Canadian City Master Plan

REGINA 1946-1976, A THIRTY-YEAR PROGRAM FOR DEVELOPMENT.—*Community Planning Committee, Regina, Saskatchewan. Report prepared by Town Planning Consultants Ltd., 24 Bloor St. East, Toronto 5, Ontario.* 1946. 8 *pp.*

A brief outline of the recently-prepared master plan for Regina. The plan is an ambitious one, covering as it does a thirty-year period. The anticipated population is stated and the program planned covers the growing needs of an expanding city.

An unusual proposal in the plan is to request the Provincial Government to amend the Community Planning Act, 1945, to establish regulations for the use of land within a metropolitan area, the boundaries to be approximately two miles beyond the city limits in order to prevent undesirable developments adjacent to the city.

Stationary Diesel Engine Guide

STANDARD PRACTICES FOR STATIONARY DIESEL ENGINES.—*Diesel Engine Manufacturers' Association,* 1 *N. LaSalle St., Chicago* 2, *Ill.* 1946. 152 *pp.* $2.50.

This concise text, devoted principally to low and medium speed diesel engines, is the third edition of "Standards" prepared by the Diesel Engine Manufacturers' Association to remove misunderstandings due to a lack of definition of terms and practices. The book will be particularly useful to operators of diesel equipment and to designing engineers who plan to incorporate diesel engines in plans that they have under study.

The book is divided into seventeen chapters, beginning with a useful definition of terms, continuing with performance and construction data, intake and exhaust systems, cooling, lube oil, and fuel oil systems, generators and electrical equipment, and engine sizes. It concludes with a guide-set of specifications for lube oil, fuel oil, and engines that is especially designed to be of assistance to officials asking for bids on engines or related equipment.

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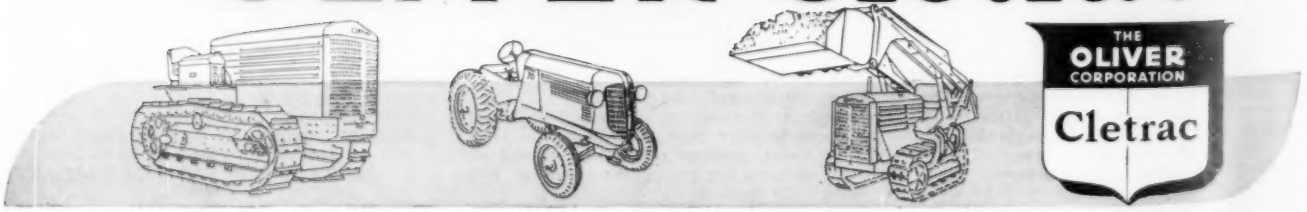

Oregon Building Code

A PROPOSED BUILDING CODE FOR SMALL CITIES.—*Bureau of Municipal Research and Service, University of Oregon in cooperation with the League of Oregon Cities.* 1946. *Appendix.* 23 *pp.* $1.00.

This building code was prepared specifically to meet the needs of the smaller cities of Oregon, but its contents should be of interest to city officials everywhere.

This code deals with residences and one-story business buildings, on the assumption that these represent most of the construction in the small city. The more technical and inclusive code of the Pacific Coast Building Officials Conference is adopted by reference, to provide regulations for the larger buildings.

It is pointed out that building codes have no value unless they are properly enforced, and that many small cities have had difficulties because they do not have full-time building officials familiar with all types of building construction. The simplicity of this Oregon code, it is stated, will make the administering of building regulations possible in every small city in the state.

Tentative plans have also been drawn up for a basic training program at Oregon State College to provide assistance and information services to those who will serve as building inspectors to enforce the provisions of the proposed code.

Modernizing City Ordinances

CODE OF ORDINANCES, CITY OF MCKEESPORT, PENNSYLVANIA, 1945.—*Published by order of the Council. The Michie Company, Charlottesville, Va.* 1945. 362 *pp.*

This volume is an excellent example of how city general ordinances can be codified, edited, and indexed so as to be really useful. The chapters are arranged in alphabetical order, and the ordinances are well-indexed.

Only ordinances of a general and permanent nature which were found desirable for retention are included in the volume. Evidently, therefore, many old and useless city ordinances were thrown into the discard.

As a means for keeping the Code up-to-date, provision has been made in the inside back cover for a pocket supplement service. Other cities would do well to follow McKeesport's example in securing the services of someone to modernize their codes.

University Public Administration Bureaus

THE UNIVERSITY BUREAUS OF PUPLIC ADMINISTRATION.—*Papers by James W. Fesler, Rowland Egger, Lent D. Upson, Samuel C. May, Robert S. Ford, Weldon Cooper, Morris B. Lambie, and Lee S. Greene. Bureau of Public Administration, University of Alabama, University, Ala.* 1946. 87 *pp.*

This booklet is a collection of papers presented in March 1946 at the meeting of the American Political Science Association during two round table sessions on "The University Bureaus of Public Administration." The papers define the field and deal with the organization of university bureaus and how they should function with regard to off-campus relationships. Local officials who are interested in the field and want to work more closely with these university government research bureaus will find the bureau listings useful and valuable.

Study of Population Characteristics of Detroit

THE PEOPLE OF DETROIT.—*Master Plan Reports. City Plan Commission, Detroit, Mich.* 1946. *Charts.* 51 *pp.*

Careful study of the population, present and future, of Detroit. The report was prepared by the City Plan Commission as part of the master plan reports and deals with the characteristics of population such as size, age composition, and spatial distribution which are the basic factors in planning. In studying the future ppoulation limits, the report analyzes the effect of the urban environment on the people of Detroit, and the scope of physical changes needed in the city.

Reissue of City Government Text

AMERICAN CITY GOVERNMENT AND ADMINISTRATION.—*By Austin F. MacDonald. Thomas Y. Crowell Co., 432 Fourth Ave., New York 16, N. Y.* 1946. *Index.* 657 *pp.* $3.75.

Subordinating technical matters to the general problems of administration, the fourth edition of this basic text is readable and easy to understand. The author states in the preface that the first edition of the volume was begun twenty years ago and that, although in those two decades the United States has passed through several crises, the fundamental principles of city government have remained unchanged.

New sections have been added on sources of municipal revenue, war housing, and emergency rent laws. The injustices of the general property tax and assessment methods used by most cities are condemned by the author, who believes that a sound tax system should be based on the principle of ability to pay rather than benefits received.

Selected references are included at the end of each chapter, as well as a list of study project problems for students.

Filmstrip Packets Available

PUBLIC AFFAIRS FLIMSTRIP PACKETS.—*Public Affairs Committee, Inc., 22 E. 38 St., New York 16, N. Y.* 1946. *Costs* $2.00 *to* $2.50, *including mailing.*

Three filmstrips have been released in this new field of endeavor of the Public Affairs Committee. The titles issued so far include the following: "We Are All Brothers," adapted from the pamphlet "Races of Mankind" by Ruth Benedict and Gene Weltfish; "Foreign Trade—It's Good Business," adapted from "What Foreign Trade Means to You," by Maxwell Stewart; and "Your Stake in Collective Bargaining," from the pamphlet of the same name by Thomas Carskadon and S. T. Williamson.

The filmstrips are 35 mm. in size, and include from fifty to sixty frames of photographs. The filmstrip packets also contain scripts to match the frames, with questions and discussion ideas, and a copy of the appropriate Public Affairs pamphlet from which the filmstrip was taken.

The filmstrip technique is effective, easy to use, and especially valuable in arousing discussion of local community problems, bringing out questions in people's minds, and airing ideas.

Silent filmstrip projectors may be borrowed from local organizations and institutions, or they can be rented at low cost.

Books in Business

LIBRARY SERVICE TO BUSINESS.—*By Marian C. Manley. American Library Association, Chicago, Ill.* 1946. 72 *pp.*

The increasing importance of reference services which libraries perform in the business field is the theme of this booklet. Miss Manley points out the value of libraries as the source of information vital to a constructive, liberal, and sound economic policy. The book is intended to show the relation of business library service to already-established library administration. It should be of value to small libraries in showing how business service may be developed.

Ten Years of Progress for Delaware River Basin Commission

INGODEL: A DECADE OF PLANNED PROGRESS 1936-46.—*Interstate Commission on the Delaware River Basin, Philadelphia, Pa.* 1946. *Appendix.* 19 *pp.*

Summary of the activities and accomplishments of the Interstate Commission on the Delaware River Basin, the joint governmental agency of the states of Delaware, New Jersey, New York, and Pennsylvania. The study tells how the commission was organized and conducted and discusses its activities in the fields of water supply, conservation, stream pollution, flood control, federal-state, and local-state relations. The booklet includes complete listings of the various committees, past and present.

Parking Discussions

PARKING CLINIC. CONDENSED DIGEST.—*Meeting sponsored by City of Kansas City, Missouri and various Kansas City citizens groups, July* 9-10, 1946. *Mimeo.* 45 *pp.*

Speeches and discussions by leading traffic and parking experts and representatives of cities which are actively dealing with their parking problem. This pamphlet is a digest of the meeting at Kansas City, Mo., held solely for the purpose of exchanging experiences and formulating new approaches to the parking situation.

Small Boat Harbor for Cleveland

A MARINA FOR CLEVELAND.—*By Charles L. Knight. In the July* 1946 *issue of Landscape Architecture. American Society of Landscape Architects, Boston, Mass. Illus.* 9 *pp.*

Description of the proposed small craft harbor to be built at Edgewater Park as part of the Cleveland waterfront development. The author describes the efforts of local boat owners to provide such a harbor and the conditions which have made the present harbor inadequate. He then outlines the current needs and the plans which the city administration has prepared for a harbor, clubhouse and complete facilities for pleasure boats.

Other Reports Received

BALTIMORE, MD.—*You Ought to Care . . . You Live Here!* Citizens Planning and Housing Association, 403 Morris Bldg. 1946. Illus. Unpaged.

CAMDEN, N. J.—*Let's Consider Camden.* Camden County Chamber of Commerce, 122 North Broadway. 1946. Illus. Unpaged.

CHICAGO, ILL.—*Accident Facts* 1946. National Safety Council, Inc., 20 North Wacker Dr. Charts. 96 pp. One to ninety-nine copies, 50 cents each; one hundred or more, 40 cents each.

—*Employment, Rehabilitation, and Veteran Adjustment*, a Bibliography, 1940-1945. Compiled by Paul S. Burnham. Public Administration Service, 1313 E. 60 St. 1946. Mimeo. 25 pp. $1.00.

CINCINNATI, OHIO—*Wholesale Produce Market.* Metropolitan Master Plan Study. Cincinnati Planning Commission. 1946. Mimeo. 75 pp. $1.00.

HAGERSTOWN, MD.—*Improving the Government of Hagerstown.* By Joseph M. Ray, Department of Government and Politics, College of Business and Public Administration, University of Maryland, College Park, Md. 1946. 21 pp.

HONOLULU, HAWAII.—Controller's Report, 1945. Charts and Tables. 60 pp.

KANSAS CITY, MO.—Public Playground Leader's Handbook 1946. Recreation Division, Welfare Department. Index. 32 pp.

NEW HAVEN, CONN.—Program for Public Improvements 1947-1952. Capital Budget Programming Committee. 1946. Charts and Tables.

NEW ORLEANS, LA.—Summary of the Bureau's Recommendations for Improved Government in New Orleans. Bureau of Governmental Research, Inc., 226 Carondelet St. 100 pp.

PROVIDENCE, R. I.—A Traffic Study of the Providence Metropolitan Area. State Department of Public Works. 1945. Illus. Maps. 95 pp.

WASHINGTON, D. C.—*Now—In Our Town.* By Regional Committee on Adult Education of the American Association of School Administrators. National Education Association, 1201 Sixteenth St., NW. 34 pp. 25 cents.

—*The Package Mortgage.* Compiled by Ruth Mushabac, Federal Housing Administration Library, Washington, D. C. 1946. Mimeo. 7 pp.

—*Report on Plan Preparation of State and Local Public Works.* Federal Works Agency, Bureau of Community Facilities. 1946. Charts and Tables. 70 pp.

THE MODERN WAY

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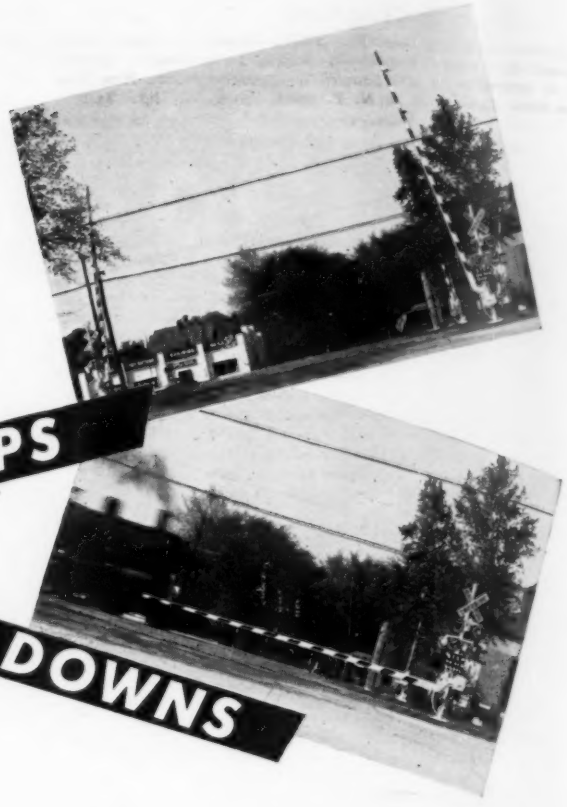

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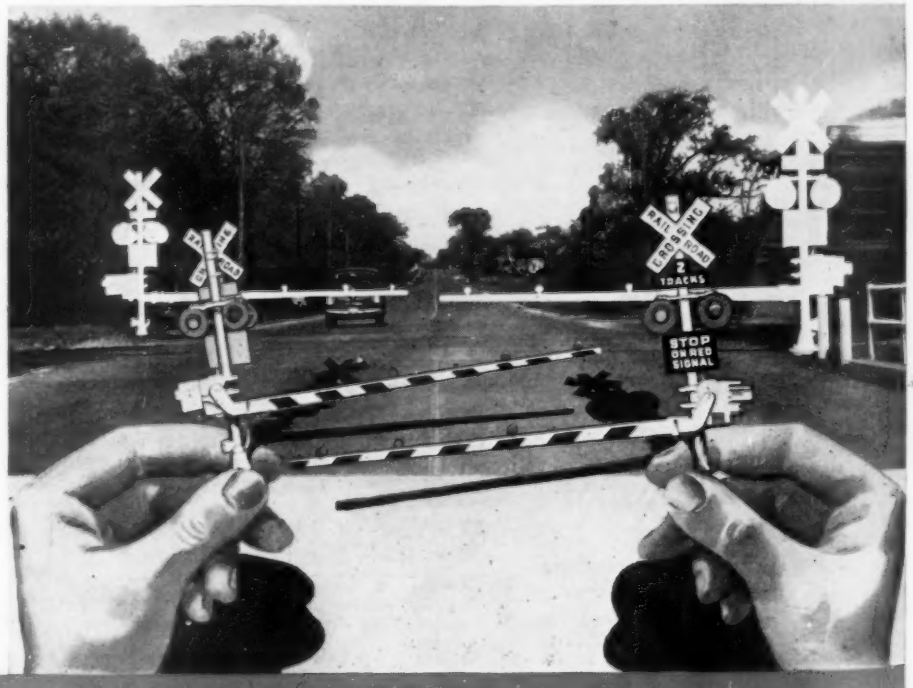

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News and Illustrations

Items of interest to city, town and county officials and others concerned with the economical construction and efficient operation of public improvement undertakings

Coleman New President for Burroughs Adding Machine

John S. Coleman has been named president of the Burroughs Adding Machine Co., Detroit, Mich. He succeeds Alfred J. Doughty, who resigned as president and director on the advice of his physician.

John S. Coleman

Mr. Coleman had been vice - president and director of Burroughs since May, 1944. Although only forty-nine years old, he has had more than twenty-six years' experience in Burroughs marketing and manufacturing.

Mr. Doughty had been closely connected with the company over a period extending back to 1884, when he became associated with William Seward Burroughs in the invention and assembly of the world's first practical adding machine. He was vice-president and a director from 1923 to 1943 and president from 1943 until his resignation.

Mr. Coleman began his career with Burroughs in March 1920 as a junior salesman at the company's Washington branch, was eventually made assistant manager of the branch, and in 1937 was made division manager. In March 1943 he moved to Detroit as executive assistant and became a vice-president and director the following year. All during this time he continued his war contract duties and broadened his responsibilities to meet the changing wartime picture.

Burroughs also announced a number of other executive changes. Laurence V. Britt, former executive vice-president, was made chairman of the board of directors and chairman of a newly-formed executive committee.

John L. Stewart, former vice-president and treasurer, was promoted to the post of executive vice-president. Mr. Stewart now combines the duties of executive vice-president and treasurer.

Thomas G. Long, legal counsel for the company for the past thirty years, was named to the board of directors to fill the vacancy caused by Mr. Doughty's retirement.

Raymond G. Bower, director and general factory manager, is now vice-president of engineering.

Ray R. Eppert, sales manager, was named vice-president of marketing.

Sheldon F. Hall, former special representative in Washington, has been named assistant secretary and assistant treasurer.

Everwear Mfg. Co. Sold

Harris, Karp, Goldsmith Co., commercial investors of Cincinnati, Ohio, recently purchased The Everwear Manufacturing Co., Springfield, Ohio, manufacturers of playground equipment, basketball backstops, and swimming pool equipment. The Cincinnati concern at present operates The Hisey-Wolf Machine Tool Co., Cincinnati, Ohio; The Smith and Mills Co., Cincinnati; The Marietta Furniture Co., Marietta, Ga., and is financially interested in others.

Mr. Harry D. Franklin, executive vice-president of The Smith and Mills Company, has been elected president of the Everwear Manufacturing Company and has stated that the management remains the same with the exception of Walter B. Evans, who has retired. Fred C. Garratt, Jr., assumes the duties of general manager. The new owners intend to add to the present facilities so that production can be increased and deliveries speeded up. New literature is being prepared.

New Cathodic Protection Unit

A new cathodic rectifier unit designed to provide rust and corrosion protection for steel water tanks and deep-well pumps is being offered the municipal field by the Trimount Instrument Co., 37 W. Van Buren St., Chicago 5, Ill.

The unit is contained in a weatherproof steel cabinet and has a DC output capacity of 2 to 5 amperes at 31 to 50 volts—sufficient to protect submerged areas up to 10,000 sq. ft. Preferred AC input is 110 volts, 3 phases, 60 cycles, but the unit can be equipped to take other AC characteristics if desired.

For Lettering Engineers' Drawings

Many city engineers and utility and public works officials are interested in this new Elliott-Fisher electric machine for lettering engineers' drawings. Made by Underwood Corp., One Park Ave., New York, N. Y., its simplicity permits an office clerk to perform the lettering, freeing the draftsman for drafting. It is as flat as a drawing board and designed to take drawings of any size. The electrically operated typing head moves freely over the drawings and letters with pin-point accuracy. In smaller offices where lettering is not a continuous operation, the machine can be applied to other typing jobs.

"THE FLEET'S IN"

Henry Nelson, commissioner of public works; Bernt Molbeck, council president; and Frank Marino, chairman of the streets committee, with new Internationals recently delivered to the City of Racine, Wisconsin.

THAT'S THE WAY a Racine, Wisconsin, newspaper started its story about the new International Trucks recently put into municipal service by the city.

Yes, the fleet was in—a fleet of ten Internationals equipped with ash and garbage collection bodies. And fourteen more Internationals are on order.

Racine's choice of Internationals was based on the same solid reason that has earned these rugged trucks their outstanding reputation in municipal service.

And that solid reason is dependable performance—performance so dependable that for the last 15 years more heavy-duty International Trucks have served American commerce and industry than any other make.

Another factor that highly recommends Internationals to municipalities is this:

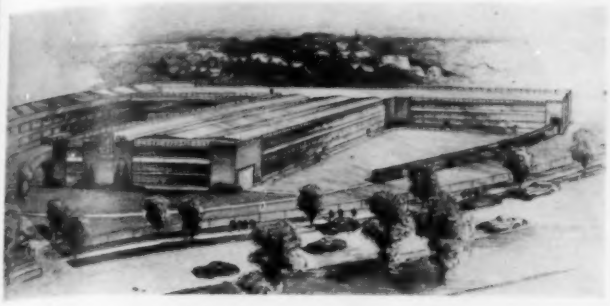
The International Line is a *complete* line. It includes a truck of the right type and power for every municipal job. That means the right recommendation from your International Dealer or Branch.

Motor Truck Division
INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue, Chicago 1, Illinois

Tune in James Melton on "Harvest of Stars" Every Sunday! NBC Network
See newspaper for time and station

INTERNATIONAL INTERNATIONAL **TRUCKS**

Another Building Started in Heil's Expansion Program

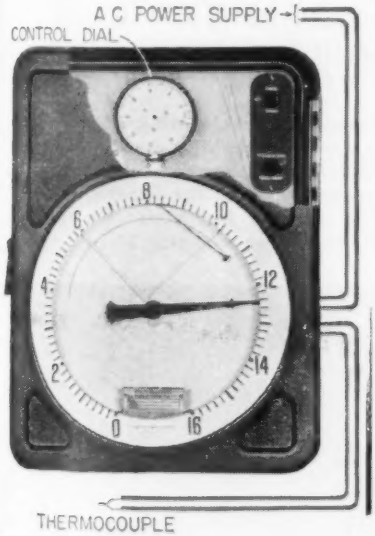


Drawing of the addition to the steel fabrication building of The Heil Company.

Construction of another unit in the plant expansion program of The Heil Co., Milwaukee, Wis., has started on its way. This $50,000 addition to Plant 3 at Milwaukee will add over 110,000 sq. ft. of manufacturing space to its present 52-acre layout. Addition of the new wing will give this building a straight-line production area over 1/3 of a mile long, with rail facilities through its entire length.

Another 30,000-sq.-ft. building is under construction at The Heil Co.'s Plant 2 at Hillside, N. J. A new 3-story sales office building has just been completed at Plant 1, Milwaukee.

Electronic Potentiometer-Pyrometer for Boilers and Incinerators



The new Bailey electronic Potentiometer-Pyrometer. This cut-away view shows the control dial by which the set point may be manually adjusted to any temperature.

A new Electronic Potentiometer-Pyrometer which has no continuously moving or vibrating parts in its measuring circuit is announced by Bailey Meter Co., Cleveland 10, Ohio. It records one or two temperatures on a 12-inch-diameter uniformly graduated chart and indicates on a 29-inch bold scale which encircles the recording chart.

This indicating, recording, and controlling instrument requires a 115-volt, 60- or 50-cycle, a.c. power supply. It operates from a thermocouple or from any source of d.c. potential which varies through at least 10 millivolts for full scale range. Conventional thermocouples are used for temperatures up to 3000°F. For temperatures above 3000°F. and for moving objects about 1500°F. radiation type thermocouples are used.

The d.c. potential of the thermocouple or other primary element is balanced against a conventional potentiometer circuit employing the usual battery source of d.c. voltage and a standard cell with manual standardization. Instead of a galvanometer or millivoltmeter the Bailey Pyrotron Potentiometer circuit employs a d.c. to a.c. converter and an electronic detector to measure potentiometer unbalance.

Bailey engineers state that it is an effective controller for temperature since its inertia-free electronic detection and high-speed motor system instantly respond to keep the measuring circuit in continuous balance.

This Pyrometer may be furnished with two controllers operating from two entirely separate measuring circuits, all housed in the same recorder casing. This arrangement permits double the number of recorder controllers to be included in a given panel space.

These recorders are made up of a number of interchangeable sub-assemblies standardized so that only a few spare parts need be carried in stock to provide replacement parts for a large number of electronic instruments. Both the electronic amplifier unit and the a.c.—d.c. converter are mounted in die-cast housing which plug into the rear of the recorder casing.

A 16-page Bulletin, No. 232, "Bailey Pyrotron Electronic Potentiometer-Pyrometer," describes and illustrates various indicating, recording, and controlling combinations and outlines principles of operation.

Leece Appointed by Gardner-Denver

G. V. Leece, vice-president of Gardner-Denver Co., Quincy, Ill., has been appointed general sales manager for the company. Mr. Leece joined Gardner-Denver in 1922 and for the past two years has been vice-president in charge of the Export Division, with offices in New York City. For five years previously he was district manager of the New York branch office and for seven years before that has been Pacific Coast manager.

Mr. Leece, who is also a director of the company, will now be located in the company's plant at Quincy, Ill.

Gar Wood Promotes Sharpe

Clifford A. Sharpe has been elected vice-president in charge of manufacturing for Gar Wood Industries, Inc., Detroit, Mich., according to a recent announcement by John J. Bergen, chairman of the board.

Mr. Sharpe, appointed works manager last May, has been associated with Charles W. Perelle, president of Gar Wood, for some time and was his assistant when Mr. Perelle was vice-president in charge of manufacturing for Consolidated Vultee Aircraft Corp.

Mr. Sharpe will supervise the company's manufacturing operations in Detroit, Wayne, and Marysville, Mich.; Mattoon, Ill.; Findley, Ohio; Newport News, Va., and St. Paul, Minn.

Cuba Uses Six of These Flushers

Havana, Cuba, has six of these power flushers operating in its municipality. These are Municipal Supply tanks mounted on Reo trucks. The Big 6 flushers, as they are called, have 2,500 gallons capacity and are equipped with four flushing nozzles. These streamlined units have an attachment for filling the tank from sources other than fire hydrants, booster pump fire-fighting attachment capable of throwing a 1-inch stream 80 feet high, and sprinkler attachments, for laying dust on dirt roads, capable of sprinkling a width of 50 feet.

An aerial gravity line was indicated as the best means of transporting sewage across this river and into the main trunk sewer. And the engineers selected ARMCO Asbestos-Bonded Pipe for these important reasons . . . This sturdy corrugated pipe has ample beam strength for aerial suspension. Corrugated coupling bands join long sections — assure a tight joint as strong as the pipe itself. There are fewer joints to connect and, thanks to the light weight of Armco Pipe, even the longest lengths are easy to handle and install. Temperature changes are no problem because Armco Pipe absorbs expansion and contraction without special fittings.

For severely corrosive conditions, a full bituminous coating is tightly bonded to the base metal. Erosion is checked by a thick bituminous pavement that makes the bottom last as long as the top.

Underground, as well as in the air, you will find that ARMCO Asbestos-Bonded Pipe can solve many of your most vexing sewer problems. It withstands destructive vibration under highways and railroads, spans unstable or wet foundations, and can be placed in the deepest trenches. Where necessary this time-proved pipe can be jacked under busy streets without disturbing pavement or traffic. Write today for the Armco Sewer Book. Armco Drainage & Metal Products, Inc., and Associated Companies, 1375 Curtis Street, Middletown, Ohio.

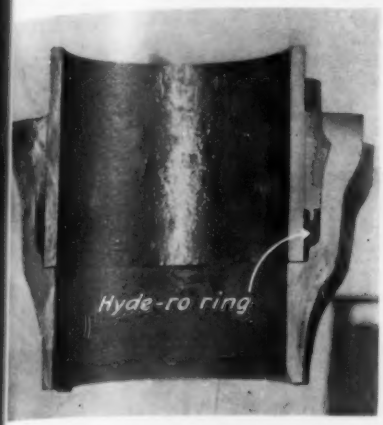
★ ★ ★

Supported by cables and brackets attached to a railroad bridge, ARMCO Asbestos-Bonded Pipe provides safe passage for sanitary sewage. The span is 1700 feet long and 100 feet above the river. Installation time was only 14 days.

ASBESTOS-BONDED

Armco Sewer Pipe

Sanitary Pipe Joint Ensured



This rubber ring for packing cast-iron pipe makes a sanitary joint.

With the HYDE-RO RING, the Atlas Mineral Products Co., Mertztown, Pa., says that you can forget about your fear of bacteria being harbored in the joint packing of your water mains. This rubber ring for packing bell and spigot cast-iron pipe replaces the standard joint packing, which has been known to harbor bacteria. Rubber cannot support bacterial growth internally, and main-sterilizing agents can do their work and eliminate the possibility of recontamination.

The cost of the rings, the company points out, is insignificant in comparison with the cost of repeated treatments with hypochlorite. Their installation is simple; there is no measuring required, and no cutting; the wrong size cannot be used; and there are no laps to occupy too much of the joint space and permit leakage. They are especially useful in repair work, since the rubber ring, caulked tightly into place, effectively dams off water from leaking valves and permits pouring of dry joints.

Folder No. HR2, issued by the Atlas Mineral Products Co., Mertztown, Pa., describes the HYDE-RO RING in detail.

New Crawler Tractor

Allis-Chalmers new 37-hp crawler tractor with parts interchangeable with other Allis-Chalmers tractors.

Allis-Chalmers Tractor Division adds a new crawler tractor, the HD-5, to its present line of equipment.

This 37-hp tractor has several outstanding features. The first is its grease-packed truck wheel, idlers, and support rollers, serviced at the factory and requiring attention thereafter only once every 1,000 hours. The second is its General Motors two-cycle diesel engine with unit injection, four-way cooling and parts that are interchangeable with other Allis-Chalmers 71-series tractors. The third is its comfortable cushion seat with arm rests that serve as auxiliary seats and a narrow engine cowl that affords the operator a good view of the drawbar work. Accessible controls and convenient gear-shifting arrangements that give five speeds forward, ranging from 1.46 mph to 5.47 mph, and a reverse speed of 2 mph, eliminate much unnecessary operator fatigue.

Fourth is its A-frame track stabilizer design enabling the HD-5 to absorb shock, eliminate twisting strains, and provide a rigid track alignment. And finally, for special assignments, allied equipment can be obtained, such as the new hydraulic Tracto-Shovel manufactured by the Tractomotive Corp., Findlay, Ohio. Straight and angle-type bulldozers have been specifically engineered by Baker and Gar Wood to meet the needs of the new HD-5.

Further information can be obtained by writing to Allis-Chalmers Mfg. Co., Tractor Division, Milwaukee 1, Wis.

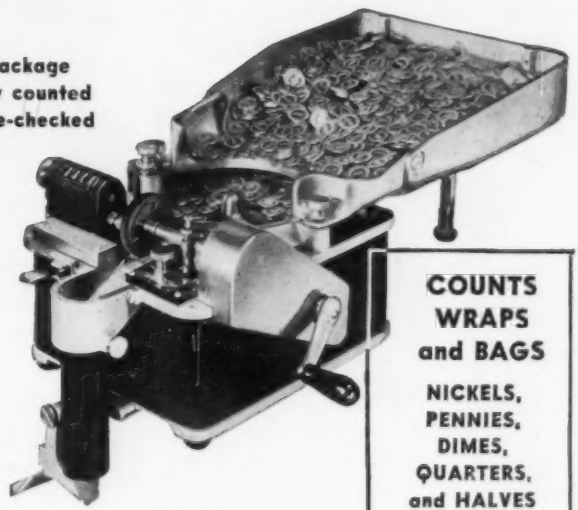
EVERY CITY

When counting PARKING METER money,
can save valuable hours
by using the portable, lightweight

DOWNEY-JOHNSON

COIN COUNTER

Every package accurately counted and double-checked



WEIGHT ONLY 17½ LBS.

COUNTS WRAPS and BAGS

NICKELS, PENNIES, DIMES, QUARTERS, and HALVES

A Practical Investment That Pays Dividends Daily

Make the counting of your parking meter collections easy with this *Downey-Johnson* Model 20 PH *Coin Counter* . . . It will count and wrap 175 rolls of coins per hour or bag 35,000 nickels per hour. This small machine saves time and labor—gains valuable hours for productive purposes—yet is priced within the reach of all. WRITE FOR CIRCULAR TODAY.

Universal Business Equipment Co.

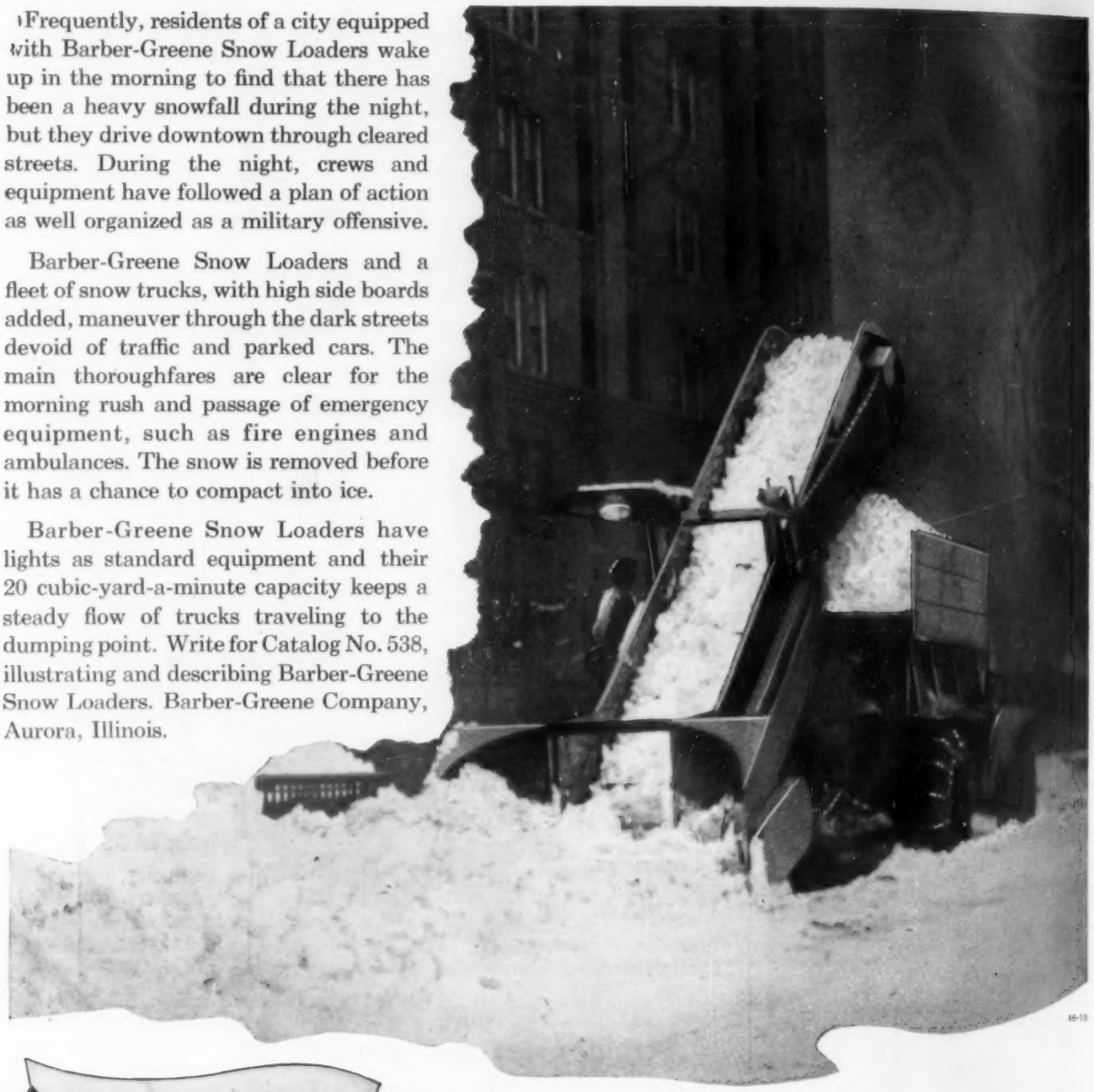
537 So. Dearborn St. **Chicago 5, Ill.**

How BG Snow Loaders Work While the City Sleeps

Frequently, residents of a city equipped with Barber-Greene Snow Loaders wake up in the morning to find that there has been a heavy snowfall during the night, but they drive downtown through cleared streets. During the night, crews and equipment have followed a plan of action as well organized as a military offensive.

Barber-Greene Snow Loaders and a fleet of snow trucks, with high side boards added, maneuver through the dark streets devoid of traffic and parked cars. The main thoroughfares are clear for the morning rush and passage of emergency equipment, such as fire engines and ambulances. The snow is removed before it has a chance to compact into ice.

Barber-Greene Snow Loaders have lights as standard equipment and their 20 cubic-yard-a-minute capacity keeps a steady flow of trucks traveling to the dumping point. Write for Catalog No. 538, illustrating and describing Barber-Greene Snow Loaders. Barber-Greene Company, Aurora, Illinois.



BG Barber-Greene CONSTANT FLOW EQUIPMENT

LOADERS • PERMANENT CONVEYORS • DITCHERS • PORTABLE CONVEYORS • FINISHERS • BITUMINOUS PLANTS • COAL MACHINES

Street Lighting Concern Passes Fortieth Year

Celebrating its fortieth year of operation on October 8, the Union Metal Mfg. Co., Canton, Ohio, passed up a formal celebration in favor of a full day's normal operation. Mr. C. A. Orr, president and general manager, stated that the celebration would be confined to working on a full year's backlog of orders.

C. A. Orr

The concern began in 1905 with the purchase of patents on a steel column designed for use on residential porches. Although the idea was good, and was enthusiastically received by the building industry, the company order volume remained small. However, a few years after its founding, a routine call on an architect in charge of rebuilding a Cleveland hotel resulted in a chance order for columns to support the lights at the hotel entrance. This started Union Metal on the road toward becoming the world's largest supplier of steel street lighting standards.

During the war Union Metal turned out huge quantities of gun mounts, recoil mechanisms, ammunition box trays, and other war materials. For outstanding war production the company was awarded the Army-Navy E and the Maritime Commission M. Perhaps the most dramatic story of Union Metal's part in the war was the conversion of tapered steel tubes, used in peacetime for street lighting standards, into cargo booms and masts, thousands of which were used on the famed Liberty and Victory ships.

Superior Switchboard and Davies Co. and Dual Parking Meter Co., both located in Canton, are subsidiaries of Union Metal.

New Valve Employs 30° Globe Pattern

Grove's new 30° valve effects a minimum change in the direction of the flow stream.

Extreme 30° valve body design in the Grove series "V" and "VL" globe pattern effects a minimum change in the direction of flow through the valve, and turbulence is almost entirely eliminated as the flow stream is carried through the valve in the direction of closing. Expansion takes place directly into the down-stream line after the flow has passed through the valve.

A solid one-piece stem and plug is employed to effect absolutely tight shut-off when closed. The valve stem is not directly carried by the handwheel, which removes any chance of the stem becoming distorted or bent. All shocks are absorbed by a multiple full-threaded section of the handwheel and yoke. All threaded surfaces and operating parts are protected from paint, dirt, and damage by an encasing cap shield.

Essential operating parts of the valves are lubricated by a sealed lubricant "zoned" entirely away from the flow stream and isolated from temperature effects.

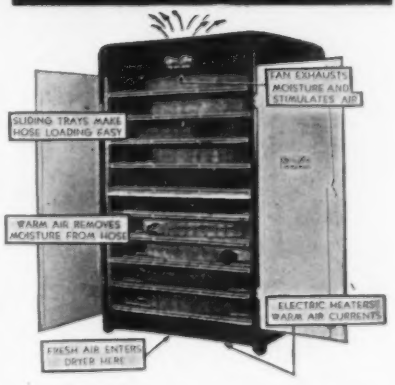
Complete details covering the many new features of these valves are contained in Bulletin 5060 available on request from Grove Regulator Co., 65 & Hollis Sts., Oakland, Calif.

95%

of all water works in America use this "B" Machine. Conclusive evidence that the MUELLER "B" Drilling and Tapping Machine is the accepted standard in the water works industry for drilling and tapping holes in pipe, and for inserting or removing corporation stops of equal or larger size—all under pressure. Order your MUELLER Machine today.

MUELLER CO. FOUNDED 1857
DECATUR 70, ILL. LOS ANGELES 23, CALIF.

CIRCUL-AIR
FIRE HOSE DRYER
- Is easier to use
- Saves drying time
- Reduces hose stretch
- Prevents mildew and rot
- Improves building design
- Air-conditions as it dries


FAN EXHAUSTS MOISTURE AND STIMULATES AIR
SLIDING TRAYS MAKE HOSE LOADING EASY
WARM AIR REMOVES MOISTURE FROM HOSE
ELECTRIC HEATERS WARM AIR CURRENTS
FRESH AIR ENTERS DRYER HERE

The CIRCUL-AIR CORP.
575 E. Milwaukee Street
DETROIT 2 MICHIGAN

SPARLING MAIN-LINE METERS

For Accurate Measurement of Main-Line Flows

Efficient operation of any water system demands accurate knowledge of how much water is going into distribution lines. For over 27 years Sparling Main-Line Meters have given Service and Satisfaction.

Bulletin 309 comes upon request.

R. W. SPARLING
Manufacturer of Water Measuring Equipment
LOS ANGELES • CHICAGO • CINCINNATI • NEW YORK • BOSTON

FOR GOOD LOOKS THAT COMMAND ATTENTION—IT'S UNIFORMS OF

REEVES ARMY TWILL

"FROM COTTON TO CUTTER"

Look For This Label In Your Uniforms and Work Clothes!

SMART APPEARANCE is an asset in any business. That's why it's wise to specify Reeves Army Twill for uniforms and work clothes that always look their best. Their high tensile strength assures rugged wearability. Vat dyed colors are fast to sun, water and perspiration. Sanforized Shrunk*, they retain their smart tailoring—even after repeated washings. Remember—over 90 million yards of this same cotton fabric helped equip America's fighting forces—exceeding Government specifications under the toughest combat conditions.

**Residual shrinkage less than 1%*

THE REEVES FABRIC GROUP INCLUDES:

Reeves Army Twill • Glengarrie Poplin
Reeveking Gabardine • Byrd Cloth
Marine Herringbone • Mountain Cloth
Warrior Twill • Pima King Broadcloth

MADE OF FINE COTTONS

WEAVING DYEING FINISHING Reeves FABRICS

REEVES BROTHERS, INC.
54 WORTH STREET, NEW YORK 13, N. Y.

REPRESENTATIVES IN *Atlanta • Boston • Chicago • Dallas • Los Angeles • Philadelphia • St. Louis • Montreal • Toronto*

Improved Breathing Apparatus Gets Bureau of Mines OK

The Scott Air-Pak recently approved by the Bureau of Mines. Fire departments use this to permit firemen to enter gas or smoke-filled rooms with safety.

The Scott Air-Pak, a new self-contained breathing apparatus, designed and manufactured by the Scott Aviation Corp., has just been granted approval No. 1308 by the Bureau of Mines.

It has been widely accepted by municipal fire departments for rescue equipment and to permit firemen or other persons to enter a smoke- or gas-filled room safely. It also allows the firemen to locate the source of the fire without danger of asphyxiation.

The company will furnish further information; write to Safety Equipment Division, Scott Aviation Corp., Lancaster, N. Y.

New Board Member for Electric Machinery

Thomas Cruthers was elected a member of the Board of Directors of the Electric Machinery Manufacturing Co., Minneapolis, Minn., manufacturers of motors, generators, and controls, at a recent meeting of the board.

Thomas Cruthers

This company is a subsidiary of Worthington Pump & Machinery Corp., Harrison, N. J., of which Mr. Cruthers is vice-president.

Watson Elected Director of IBM

Thomas J. Watson, Jr., vice-president of the International Business Machines Corp., 590 Madison Ave., New York, has been elected a director of the company, succeeding the late Hon. Abraham L. Kellogg.

Mr. Watson joined IBM in 1937, served four years in the sales division, then entered the Army Air Forces, advancing to the rank of lieutenant-colonel.

On returning to the company he was appointed assistant to the executive vice-president, Charles A. Kirk, where he assisted in the direction and supervision of all phases of the company's business. In June of this year he was elected vice-president.

Comfortable Riding Coming

The Twin Coach Co. of Kent, Ohio, delivered a total of eighty-eight urban coaches during the month of September as against eighty-two in August, according to H. C. Arnot, vice-president in charge of sales. Of the eighty-eight delivered, representing the combined shipments of the company's Kent, Ohio, and Buffalo, N. Y., plants, seventy-five were thirty-four - passenger models, twelve were forty-one passenger, and one a forty-four passenger.

BACKED BY MORE THAN A GOOD NAME!

RENSSELAER

Double Disc GATE VALVE
Write for Bulletin X

Our Expert Field Representatives
bring Rensselaer's years of valve research and engineering "know-how" to your field of operations!

Enthusiastic SERVICE
by our factory on large orders or simple inquiries. Our Engineering staff gives cheerful attention to even the smallest valve problem.

Proven LONG-LIFE
Thousands of Rensselaer valves are in constant operation after service for over 60 years.

WAREHOUSE STOCKS
are normally maintained strategically throughout the U. S. to insure prompt delivery in every section of the country.

Please Be Patient. The Wide Acceptance of Our Products Has Caused Some Delays in Deliveries.

RENSSELAER VALVE CO.

TROY, N. Y.

ATLANTA, GA. 17 Edgewood Ave., S. W.
BALA-CYNWYD, PA. 725 Kenmare Road
CHICAGO, ILL. 53 West Jackson Blvd.
HAVERHILL, MASS. Haverhill Nat'l. Bank Bldg.
HORNELL, N. Y. 38 Main St.
LOS ANGELES, CALIF. Subway Terminal Bldg.
MEMPHIS, TENN. 519 Farnsworth Bldg
OKLAHOMA CITY, OKLA. 817 Braniff Bldg.
PITTSBURGH, PA. 2203 Oliver Bldg.
SAN FRANCISCO, CALIF. 115 Townsend St.
SEATTLE, WASH. 1252 First Ave., South
WACO, TEXAS 206 Franklin Ave.

● The maneuverability of the nimble Patrol Sweeper leaves a minimum of unswept area around parked cars.

cars or curbs . . it hugs 'em all

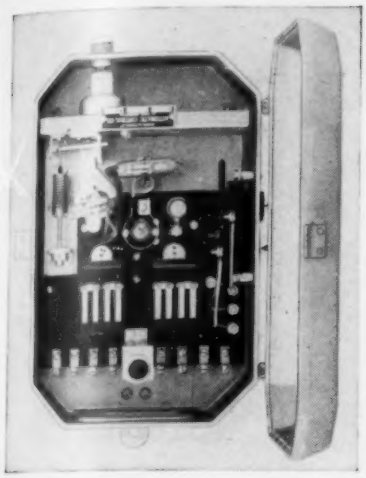
Short wheelbase and 3-wheel design give the Patrol Sweeper unrivalled handling ease. Narrow streets, dead-end streets, alleys and congested areas are no problem. The saving in time—a little here and a little there—and the saving in effort, insure top performance and low-cost sweeping.

AUSTIN-WESTERN COMPANY
AURORA, ILLINOIS, U.S.A.

● Short-radius curves are no problem. . . . No slackening of speed . . . no loss of sweeping efficiency.

BUILDERS OF ROAD MACHINERY
Austin Western
SINCE 1859

Protectrol Device to Protect Pumps



Protectrol is a new device for preventing deep-well or centrifugal pumps from running more than a predetermined interval without discharging water.

Protectrol, a new device now being manufactured by the Automatic Control Co., 1005 University Ave., St. Paul 4, Minn., prevents deep-well or centrifugal pumps from running more than a predetermined interval without discharging water. Mechanical failure, lowering of the water table, or any other cause for the failure to discharge will stop the pump and keep it from restarting until the device has been manually reset. In this way, should trouble develop, the pumping operation is stopped until corrected.

The Protectrol is simply mounted in the pump house and connected directly into the pump discharge on the pump side of the check valve. In this position it is readily accessible.

Zwally Joins Engineering Firm

Charles W. Zwally has joined the engineering organization of Gannett Fleming Corddry and Carpenter, Inc., Harrisburg, Pa., and New York, according to a recent announcement. Mr. Zwally will be attached to the Greensburg, Pa., office, where he will be engaged on special design work in connection with the extension of the Penn Parkway westward from Pittsburgh, a contract recently awarded this firm.

Mr. Zwally was at one time with the Pennsylvania Turnpike Commission in the designing section; later with Gannett Fleming Corddry and Carpenter, Inc., in charge of highway design at Andrews Field, Md.; and later on the staff of Michael Baker on the design of the Penn Parkway through Pittsburgh. More recently Mr. Zwally has been in Puerto Rico with the U. S. Engineers working on maintenance of airports.

APCO-V-APCO PRIMERS

AUTOMATIC
POWER
OR
TANK PRIMERS

AIR RELEASE VALVES

FOR

FILTER PIPE LINES
DISTRIBUTION LINES
AND OTHER USES
17 TYPES

VALVE AND PRIMER CORPORATION

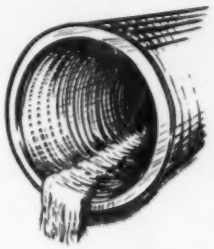
30 W. Washington St.
CHICAGO 2, ILL.

2 LAZY MAINS

Water Main No. 1 was both lazy and stingy:—

Although it was a 12-inch line, it was lying down on the job and giving only as much pressure as you would normally expect from an 8-inch main. One afternoon recently, the National Water Main Cleaning Company removed approximately eight tons of incrustation from this pipe line, restoring it to approximately 100% efficiency. "The operation was a complete success," according to the local water company superintendent.

Water Main No. 2 was another trouble-maker:



There was no tuberculation in *this* main because it was cement-lined; nevertheless it had been giving trouble for years. What was the matter? . . . After midnight, the water was turned off for only fifty minutes, while a National Water Main Cleaning machine removed a large obstruction which had lodged in the pipe. The next morning, according to the local newspaper, the flow of water in the main was "better than it had been for years."

Today—residents in both sections of the city where these mains were cleaned by NATIONAL are getting "more pressure and more water than they have had in many years."

NATIONAL GUARANTEE:
To restore water mains to at least 95% of their original capacity.

THE NATIONAL WATER MAIN CLEANING CO.
50 CHURCH ST., NEW YORK 7, N. Y.

ATLANTA 3
1221 Mortgage Guarantee Bldg.

BOSTON 15
115 Peterboro St.

CHICAGO 6
205 W. Wacker Dr.

KANSAS CITY 2
3707 Madison St.

MEMPHIS 3
519 Farnsworth Bldg.

MONTREAL 2
2028 Union Ave.

OMAHA 5
3812 Castellar St.

RICHMOND 19, VA.
210 E. Franklin St.

ST. LOUIS 17
7103 Dale Ave.

SAN FRANCISCO 5
501 Howard St.

WACO, TEXAS
The Rohan Co., Inc.
P. O. Box 887

WINNIPEG
576 Wall St.

Mayaguez, P. R.
Americo Rodriguez, Inc.
P. O. Box 749

The Fire Alarm Box

Saves Time

Reduces Fire Losses.
Protects Life - Home - Business and Income.

You Can Help—

By urging your municipal officials to provide a box at every fire hazard.

Detailed information on request

THE GAMEWELL COMPANY
NEWTON UPPER FALLS 64, MASSACHUSETTS
IN CANADA: NORTHERN ELECTRIC COMPANY, LTD., MONTREAL

C. R. Jahn Co. Appoints Manager

H. J. Hocker has been appointed general plant manager of the C. R. Jahn Co., Chicago, Ill., manufacturers of heavy - duty low-bed trailers. He was formerly chief of production for the Chicago Engineer Procurement District, and recently returned after twenty - six months' duty with troops in the European Theater as Regimental Commander of Engineer Units.

H. J. Hocker

For ten years preceding the war, he was chief inspector for the Chicago District of the U. S. Engineer Department.

Motorola Receives War Department Award

P. V. Galvin receives Motorola's War Department award from Brigadier General C. H. Arnold, Signal Corps.

A Certificate of Appreciation was presented to P. V. Galvin for the outstanding and dependable service rendered by The Galvin Mfg. Corp., Chicago 51, Ill., to the Signal Corps during World War II. The presentation was made by Brigadier General Calvert H. Arnold, Chief, Signal Corps Procurement and Distribution Service, representing the Secretary of War and Major General H. C. Ingles, Chief Signal Officer.

Mr. Galvin accepted this certificate in behalf of the employees of the company at a ceremony at the Galvin plant in Chicago on September 26. The certificate was awarded for the outstanding job done by Galvin in the design and production of radio and radar equipment for the Army during World War II. The organization produced units of ground forces radio, including mobile transmitters, the Motorola "Handie Talkie" and "Walkie Talkie" the Motorola standard two-way communications equipment, and units of radar and beacon equipment for airborne, shipborne, and land station use.

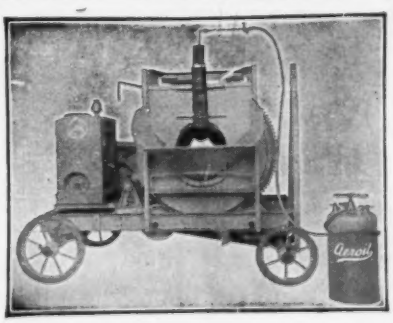
Pipeline Repair Fittings

Pipeline repairs need not be a problem, according to Smith-Blair, Inc., 535 Railroad Avenue, specialists in water works supplies, South San Francisco, Calif. With sets of Smith-Blair pipe repair lugs you can make your own repair clamps and be ready for difficulties with any size of pipe. You can either cut your own stock to make the repair, or you can obtain sheet metal bands from this company to use with the clamps.

If you need a flexible service coupling for plain-end pipe, Smith-Blair has just that type of accessory. This company's flexible service couplings will connect plain-end pipe in a flexible and yet permanent manner. The couplings may be used in close quarters and are installed easily by the use of an ordinary pipe wrench. Smith-Blair also has flexible couplings of the bolted type for cut-in purposes and for reducing pipe sizes if required.

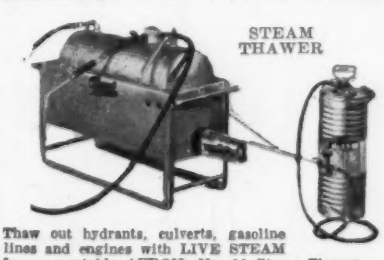
The Smith-Blair General Catalog No. 4, Second Edition, gives complete information about these specialties and shows much information that will be valuable to the water works man in meeting pipeline difficulties.

HOT CONCRETE



Don't risk batch failures due to frost. Pour HOT CONCRETE . . . it will stay warm 48 to 60 hours . . . long enough to set properly. AEROIL Concrete Heaters to fit all sizes and shapes of mixers. In stock for shipment. Write for FREE Bul. No. 208.

STEAM THAWER



Thaw out hydrants, culverts, gasoline lines and engines with LIVE STEAM from a portable AEROIL No. 98 Steam Thawer. A 2-in-1 machine for the heating unit is a thawing torch. Steaming rate 90 lbs. per hour. FREE Leaflet No. 277.

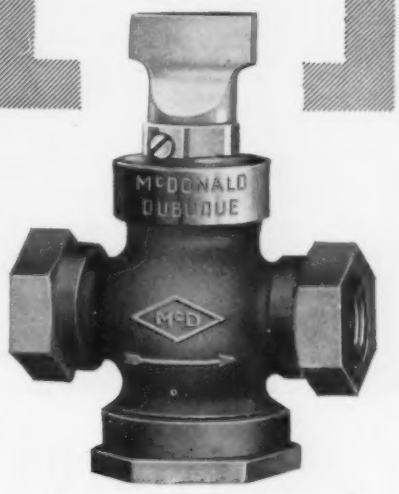
Thawing Torches

Keep jobs running despite ice, sleet, snow or frost. AEROIL Thawing Torches and Thawing Outfits produce 2,000° F. Flame and operate despite high winds. No. 99 Senior only $22. (4-gal. model), and can be shipped for stock. Write today for complete bulletin No. 294.

Aeroil Products Co.

5705 Park Avenue
West New York, N. J.

BUILT to LAST



. . the "Diamond" Line

Precision, dependability and lasting service have backed McDonald's Diamond Line of quality waterworks goods since 1856. You'll be sure of that built-to-last performance when you specify the Diamond Line. Illustrated is Plate 13061—McDonald Diamond Patent Cap Inverted Key Curb Stop Round way, malleable galvanized tee handle, iron pipe. Also available in stop and waste pattern. Comes in ½, ⅝, ¾, 1, 1¼, 1½ and 2 inch sizes. This and other items in this well-known line are available now at McDonalds. Your inquiries are invited.

EST. 1856 McDonald

A. Y. McDONALD MFG. CO.
DUBUQUE, IOWA

BRASS GOODS • PUMPS • OIL EQUIPMENT

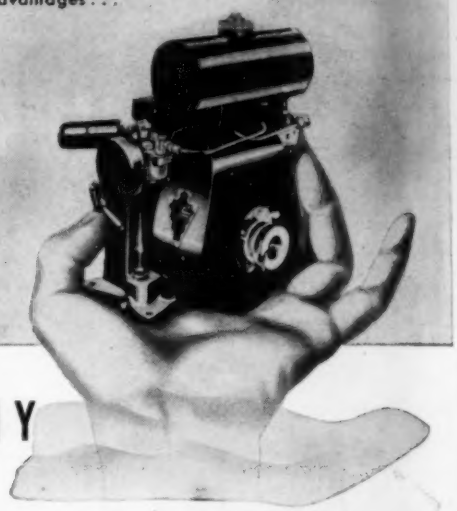
The Precision Built CLINTON ENGINE

As far ahead as the JET PLANE . . .

MODERN ENGINEERING has given the world new design, new speed, new efficiency of operation in NEW PRODUCTS . . .

The CLINTON SERIES 700 1½ H.P. 4 CYCLE, AIR-COOLED GASOLINE ENGINE, now in heavy production, is changing the thinking of users, dealers and manufacturers employing compact air-cooled power.

The sound, modern design of the CLINTON has the BEST IMPROVEMENTS of the field with none of the disadvantages . . .



IT'S NEW . . . IT'S MODERN . . . IT'S FAR AHEAD . . . IT'S BETTER ENGINEERED TO DO A BETTER JOB . . . FOR POWER ON HAND—SEE THE NEW CLINTON.

GOVERNOR: Fully adjustable, centrifugal type completely enclosed, running in oil.

IGNITION: Bendix-Scintilla airplane type magneto.

WEIGHT: 37 pounds—permitting wide application.

HORSEPOWER: Develops 1½ to 2 H.P. Good idling characteristic.

STARTING: Exceptionally easy to start, usually one cranking is all that is necessary.

CARBURETOR: Tillotson float-fed type. Bowl strainer with shut off.

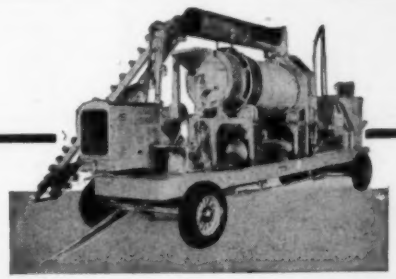
THE CLINTON

CLINTON SALES COMPANY

DONOVAN BUILDING, DETROIT 1, MICHIGAN

TRINIDAD NATIVE LAKE ASPHALT

BARBER ASPHALT CORPORATION
BARBER, NEW JERSEY



PORTABLE ASPHALT PLANTS

Write for Catalog

Eikhart **White Mfg. Co.** Indiana

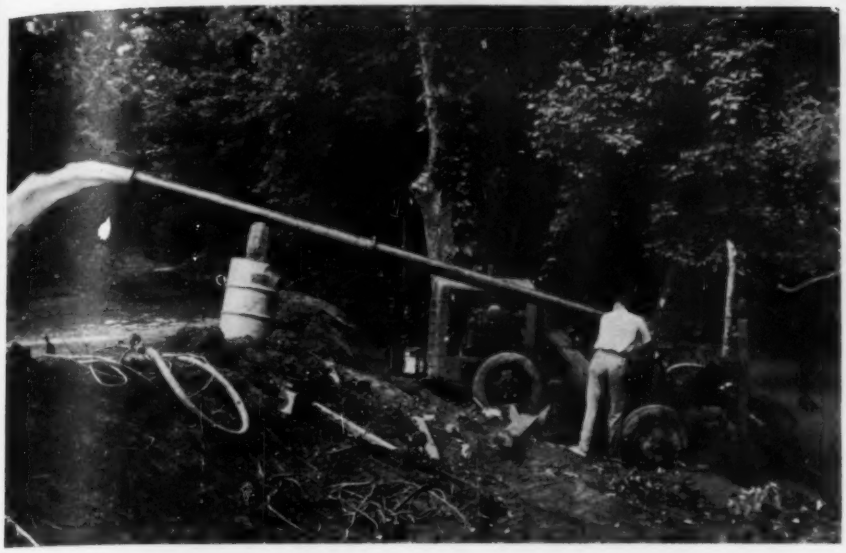
PROPER HOUSE NUMBERING

Premax systems have been generally approved because of their extreme legibility and permanence. Ask for details.

Premax Products

Division of Chisholm-Ryder Co., Inc. • 3838 HIGHLAND AVE., NIAGARA FALLS, N.Y.

Making Sand for Airport Construction



The outlet pipe of a diesel-driven sand pump is throwing sand from a creek. Water is drained from the reservoir into which the pump empties, and the sand is removed by shovel and truck for sand-asphalt paving work on the Burlington, N. C., airport.

Sand is in great demand in North Carolina for sand-asphalt paving projects. The Thompson-Arthur Construction Company has found a means of proceeding despite help and equipment shortages. It uses a diesel-driven sand pump to throw sand from the Alamance Creek, near Burlington, N. C. Water is drained from the reservoir into which the pump empties, and the sand is removed by shovel and truck for the sand-asphalt paving of the Burlington Airport now under construction.

For this work they use a 6-inch Erie centrifugal sand pump, rated 1050 gpm at 425 rpm, which is driven at 600 rpm by a 4-cylinder 100-hp General Motors diesel engine. The engine is several years old, but was fully reconditioned before being sold to Thompson-Arthur.

The Thompson-Arthur Construction Company finds that the sand obtained in this manner is cheaper than sand that is shipped in, and the supply is steady. Heavy rains in the locality have kept the sand moving in the creek, and the sand pump has had to be moved only about once every three weeks on this operation.

They Handle Coins Automatically

Nearly all parking-meter cities must have coin sorters, coin counters, and coin counting and packaging machines. Where change must be made, automatic cashiers are a convenience. One manufacturer of coin machines is the Brandt Automatic Cashier Co., Watertown, Wis., founded in 1890.

Coin sorters and counters are motor driven and portable. They count into receptacles in the machine or directly into bags. The counters and packagers count into bags or coin wrappers. The coin counters and packagers can be supplied in hand or motor-driven models.

To make change with the Brandt automatic cashier, only one key is depressed. There is a key for each amount from one to ninety-nine cents inclusive. An automatic coin lock makes the machines error-proof. They are useful in receiving taxes and making up payrolls. The four models, as well as the coin sorters and coin counters and coin counting and packaging machines, are described in an 8-page pamphlet.

New Vice-President for National Water Main

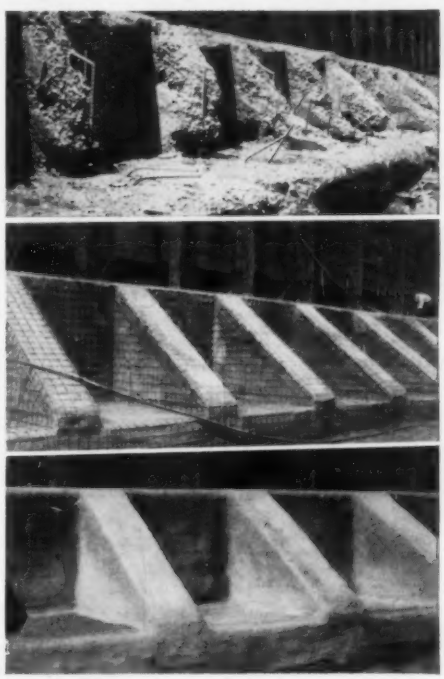
J. A. Frank has been elected vice-president of the National Water Main Cleaning Co., 50 Church St., New York 7, N. Y., by the board of directors.

J. A. Frank

Mr. Frank was previously chief engineer and field manager of the company. His experience with the company dates back to his school days, when he worked as assistant to various water main cleaning superintendents during his vacations

Mr. Frank received his degree as Mechanical Engineer from Stevens Institute in 1933, holds a license as Professional Engineer in the state of New Jersey.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.



DAM SAVED WITH "GUNITE"

The upper photo shows the condition of the downstream buttresses of a dam belonging to the Central New York Power Corporation, Trenton Falls, New York, about ten years after they were built.

The middle photo shows how we restored the buttresses with lean "GUNITE" to within two inches of the original lines, with reinforcing mesh placed preparatory to applying the final armor coat of two inch "GUNITE."

The lower photo shows the "GUNITE" work after completion.

This "GUNITE" job has now been completed for twelve years, and a recent inspection showed the "GUNITE" to be in perfect condition.

Our 72-page general bulletin D2300 describes this and scores of other jobs, and we will be glad to send you a copy upon request.

MANUFACTURERS OF THE "CEMENT GUN"

"My Vote Goes to The Truck I Drove In The Army"

Returning veterans, working on jobs where motor trucks are purchased or used, just naturally go for GMC. For wherever they served . . . Africa or the Aleutians, Europe or the Pacific . . . their number one source of truck transport was the GMC "six-by-six." And whatever their branch of the Army . . . ground or air forces, combat or supply . . . GMC "Army Workhorse" power proved its ability on the toughest jobs.

Civilian GMCs benefit by the same manufacturing facilities, incorporate the same all-truck construction and feature engines of the same basic design as their military brothers . . . nearly 600,000 strong. Offered in a wide range of models, chassis types and sizes, ½ to 20 tons, new GMC trucks provide war-proved performance for all kinds of peacetime hauling.

GMC "ARMY WORKHORSE" POWER

GMC TRUCKS

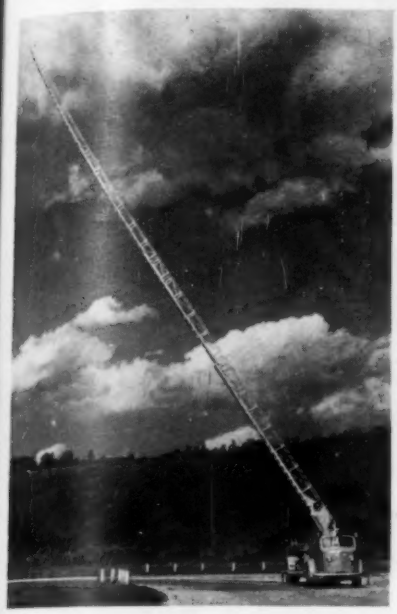
THE TRUCK OF VALUE

GASOLINE • DIESEL

Traffic accidents have increased at an alarming rate since the war. Careless driving, jaywalking and neglect of needed repairs are mainly responsible. Do your part to prevent accidents by obeying all traffic laws . . . by driving safely and walking carefully . . . by having your car or truck inspected regularly, repaired promptly and properly.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

One Hundred Feet Up



This 100-foot aerial ladder manufactured by American-LaFrance-Foamite Corp., Elmira, N. Y., fully extended at an angle of 60°, is being used as a water tower. Known as Model 4-100, this ladder is capable of holding five men at one time.

Two Street Building Aids

From the Heil Co., Milwaukee, Wis., come two street-building aids that will help make life simpler for those in the average municipal street department.

The Heil sheepsfoot tamping rollers give attention to a street's foundation and its subgrade and are scientifically designed to insure efficient compaction of loose fill. The rollers are made in three sizes and have single, double, and triple drums. Each roller consists of a heavy-duty steel box-frame to which the roller drums are attached by dust-proof bearings. At the front of the frame is a draw-bar with a universal clevis, and at the rear is a stationary clevis to provide tandem operations if desired. The feet are specially designed to be easily renewable and so that a heavy pressure can be applied without tearing up the top surface.

The hydraulic bulldozers, either HB-25, HB-25W, HB-60, or HB-60W, emphasize such construction and operating features as hydraulic and mechanical equalization to compensate for uneven traction; hydraulic control of the blade with a non-settle check valve to hold the blade in an elevated position; rear-mounted hydraulic pump which can be changed to front-mounted if desired.

Bulletins are available that describe both these street-building units. For the sheepsfoot tamping rollers, write for bulletin No. RM1839; for the tractors, ask for No. RM4403, HB-25 and HB-25W; and RM4649, HB-60 and HB-60W.

Company Changes Name

Thornton Tandem Co., 8701 Grinnell Ave., Detroit, Mich., manufacturers of special truck equipment, will be known as the Detroit Automotive Products Corp., according to an announcement by F. D. Knoblock, president.

The change was necessitated by the addition of new products to the line other than the Thornton Tandem. No change in management, personnel, or corporate structure is anticipated.

Peak-Load Emergency Power

A diesel electric set manufactured by the Caterpillar Tractor Co., Peoria, Ill., and mounted on a trailer, furnishes peak-load power for the town of Springfield, Colo. It operates from four to six hours per day on about four gallons of 8c fuel oil per hour. The Southeast Colorado Power Association owns the unit.

De Laval Labyrinth Wearing Rings contribute in a large measure to sustaining the high efficiency of De Laval pumps. The large clearance, tortuous labyrinth passage reduces leakage to a minimum and maintains ample running clearances under all conditions.

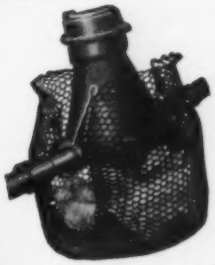
For sustained efficiency and reduced maintenance costs look for De Laval Labyrinth Wearing Rings when buying centrifugal pumps.

3235

DE LAVAL STEAM TURBINE CO.
TRENTON 2, NEW JERSEY

METER MITTENS

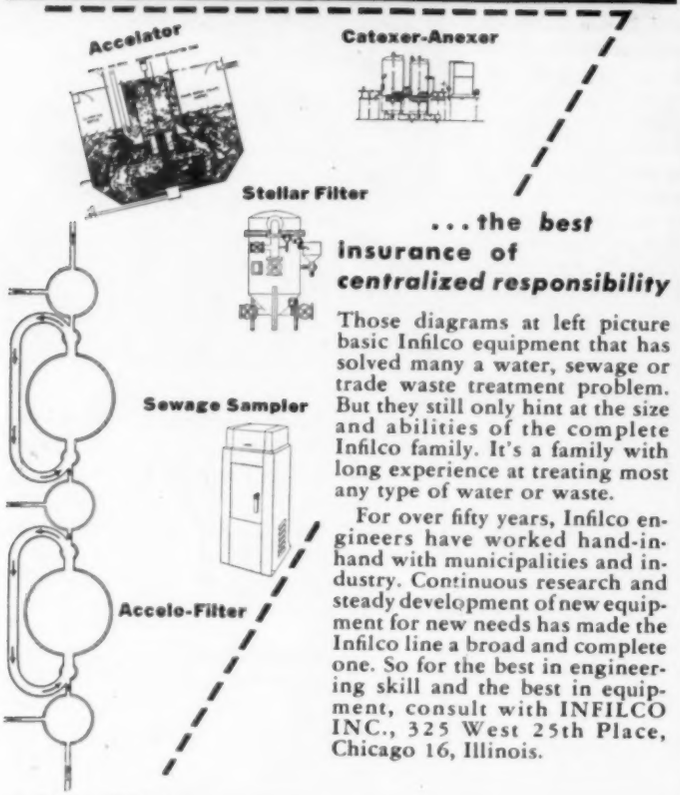
QUICKLY AND EASILY INSTALLED



Meter Mittens insulate water meters against heat loss and save many basement meters from freezing. Inexpensive, costing but a fraction of the expense of a frozen meter.

FORD
Meter Box Co.,
WABASH, INDIANA

A complete family



...the *best* insurance of *centralized responsibility*

Those diagrams at left picture basic Infilco equipment that has solved many a water, sewage or trade waste treatment problem. But they still only hint at the size and abilities of the complete Infilco family. It's a family with long experience at treating most any type of water or waste.

For over fifty years, Infilco engineers have worked hand-in-hand with municipalities and industry. Continuous research and steady development of new equipment for new needs has made the Infilco line a broad and complete one. So for the best in engineering skill and the best in equipment, consult with INFILCO INC., 325 West 25th Place, Chicago 16, Illinois.

CONSULT INFILCO — FIRST IN WATER AND TRADE WASTE TREATMENT

HAND
STORAGE BATTERIES
FOR MUNICIPALITIES

HAND storage batteries are heavy-duty batteries provided with heavy, hand-pasted tank-formed plates, heavy glass mats, acid and heat resisting micro-porous rubber separators, splash decks and genuine hard rubber containers. Built for use in Police Radio cars, Sanitation trucks, snow plows, sweepers, emergency trucks, ambulances, and fire apparatus.

The Hand Laboratory, Nyack, N. Y.

WE EXTEND A HELPING HAND

Take this helping hand of ours.

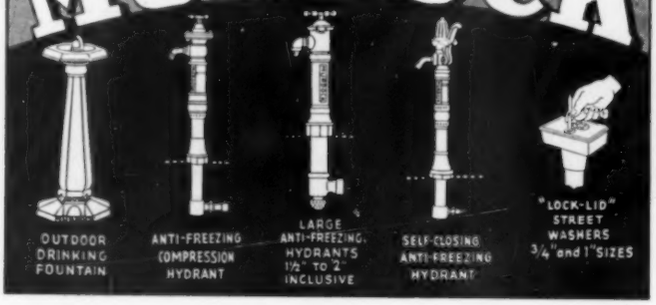
All you need do is to furnish us with requirement figures on Drinking Fountains, Hydrants and Hose Boxes and we'll make early deliveries.

1947 will be a record-breaking production year for Murdock Outdoor Water Service Devices. Remember, "the early bird gets the early delivery."

"Buy Murdock and You Buy for Service."

The Murdock Mfg. & Sup. Co.
426 Plum St. Cincinnati 2, Ohio

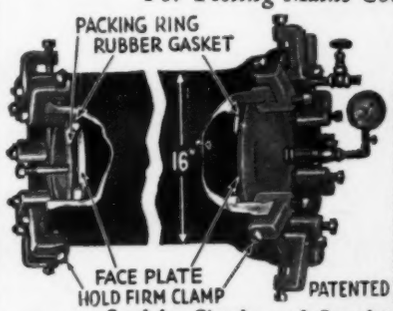
MURDOCK


OUTDOOR DRINKING FOUNTAIN
ANTI-FREEZING COMPRESSION HYDRANT
LARGE ANTI-FREEZING HYDRANTS 1½" TO 2" INCLUSIVE
SELF-CLOSING ANTI-FREEZING HYDRANT
"LOCK-LID" STREET WASHERS 3/4" and 1" SIZES

"HOLD FIRM"

A NEW TEST PLUG

For Testing Mains Conveying



WATER GAS
OIL AIR

For testing cast iron, steel, transite, soil and concrete pipe lines, without the necessity of valves; test pipe as you lay them; eliminate open trench and hazards; special for testing reclaimed pipe, valves and fittings. Installed by any unskilled laborer; withstands 300 lbs. hydrostatic pressure, light in weight; same clamps fit many sizes of pipe. Made in all sizes. Used by the City of Chicago, contractors and municipalities.

PATENTED

Send for Circular and Complete Information

TEST PLUG MFG. CO. (not Inc.) SKOKIE, ILL.

FOR STOPPING LEAKS IN PIPE LINES...

Emergency Pipe Clamp—the universal repair clamp the world over, for nearly half a century! Easy to apply. Saves cost of new pipe—eliminates job of tearing out old and putting in new.

M. B. SKINNER CO.
SOUTH BEND 21, INDIANA

SKINNER-SEAL EMERGENCY PIPE CLAMPS

How Acidizing Improves Well Production

RESULTS OF WATER WELL ACIDIZING							
LOCATION OF WELL	USE FOR WATER	TYPE OF COMPLETION	TYPE OF FORMATION	ACID USED (GALS.)	PRODUCTION (G.P.M.) BEFORE ACID	PRODUCTION (G.P.M.) AFTER ACID	% INCREASE
KANSAS	INDUSTRIAL	OPEN HOLE	SANDY DOLOMITE	3000	154	705	358.
WISCONSIN	DOMESTIC	GRAVEL PACKED	SANDSTONE	5000	850	1250	47.1
TEXAS	DOMESTIC	OPEN HOLE	LIMESTONE	9000	65	632	872.
OHIO	INDUSTRIAL	OPEN HOLE	LIMESTONE	1000	200	800	300.
ILLINOIS	DOMESTIC	SCREEN	GRAVEL	3000	325	825	154.
INDIANA	DOMESTIC	GRAVEL PACKED	SAND	1000	150	400	166.7
KANSAS	DOMESTIC	GRAVEL PACKED	SAND	1000	200	800	300.
ILLINOIS	DOMESTIC	GRAVEL PACKED	GRAVEL	1500	50	250	400.
OHIO	INDUSTRIAL	OPEN HOLE	LIMESTONE	1000	195	285	46.
WISCONSIN	DOMESTIC	SCREEN	RIVER GRAVEL	500	375	715	90.7
ILLINOIS	DOMESTIC	OPEN HOLE	DOLOMITE	2000	133	221	66.

This table, furnished by Dowell, Inc., shows the results of water well acidizing for both industrial and domestic supplies in nine states.

Water wells may be driven in almost any type of formation varying from loose sands and gravels, to limestones and dolomites. Often the wells produce satisfactorily but decline in production as they get older. Scale deposits on the screens and the presence of silt and other extraneous matter in the gravel pack often contribute to this difficulty; acidizing offers a method of combating it.

Dowell, Inc., Kennedy Bldg., Tulsa, Okla., easily removes this scale and material by the acidizing method. The engineers with this company also have been able, by analyzing water-bearing formation, to increase the yield of new wells, particularly when they are driven in limestone or dolemites.

In wells producing water for domestic consumption, the engineers use a non-toxic inhibitor with the acid which leaves no taste or odor but which adequately protects the well equipment against corrosion.

Floatless Level Control

The level control Series 10 of the Photoswitch organization makes available to the chemical, sanitary, sewage, and refrigeration fields a series of relays for the level control of all electrically-conductive liquids. Contact with the liquid is made only by a stainless steel probe rod (there are no floats, bellows seals, or stuffing boxes). With AC in the probe circuit, no electrolytic action is possible. Mica-insulated probes insure against leakage.

This floatless level control contains no vacuum tubes and operates with low voltage in the probe circuit. It is especially recommended for the control of water, ammonium chloride, copper nitrate, sulphate, sodium chloride, potassium, hydroxide, and many other acids, bases and salts. Selection from four terminals on the terminal block enables the control to be matched to a material's specific resistivity.

The operation of the control is described as follows: stainless steel probe rods are suspended into the tank from Photoswitch probe fittings. The liquid to be controlled makes or breaks contact with the probe and transmits to the control a minute electrical current at low voltage. Without the use of vacuum tubes, this current controls a power circuit which operates a relay to actuate signals, valves, or pumps.

Bulletin 201-P is available from Photoswitch, Inc., 77 Broadway, Cambridge 42, Mass.

New York Representative in Rensselaer

James M. Robinson has recently been appointed to handle the representation of the line of gate valves and fire hydrants of the Rensselaer Valve Co., Troy, N. Y., in the New York territory.

J. M. Robinson

Mr. Robinson served as radar officer on Admiral Kincaid's flagship and participated in three major engagements as well as the occupation of Japan.

Early in the war he was in charge of production planning for the Sterling Engine Company's Admiral engine for PT boats and later was assistant to the manager in the development division of Curtiss-Wright Corp.

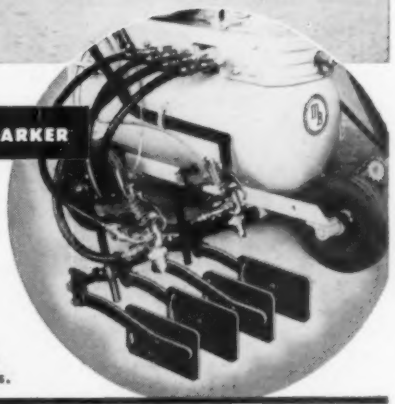
Mr. Robinson is the son of the late F. Hurd Robinson, who was superintendent of Public Works and City Engineer for Hornell, N. Y., thirty-five years.

Stripe Streets
IN A *Jiffy!*

Replace slow, tedious hand marking methods with faster, more efficient machine striping. An M-B Marker simplifies the job. Used by municipalities everywhere. Promotes safety . . . Adds to efficiency . . . Puts striping on a fast, low-cost production basis. Handles ANY type of striping . . . is quickly convertible to all-purpose paint sprayer. Two types available — hand-propelled and self-propelled. Write for Bulletin #121.

THE "*Business End*" OF AN M-B MARKER

Atomizing spray guns apply spray of paint between adjustable line guards. Paint goes down evenly and smoothly with more lineage per gallon of paint. Control valves within easy reach of operator.

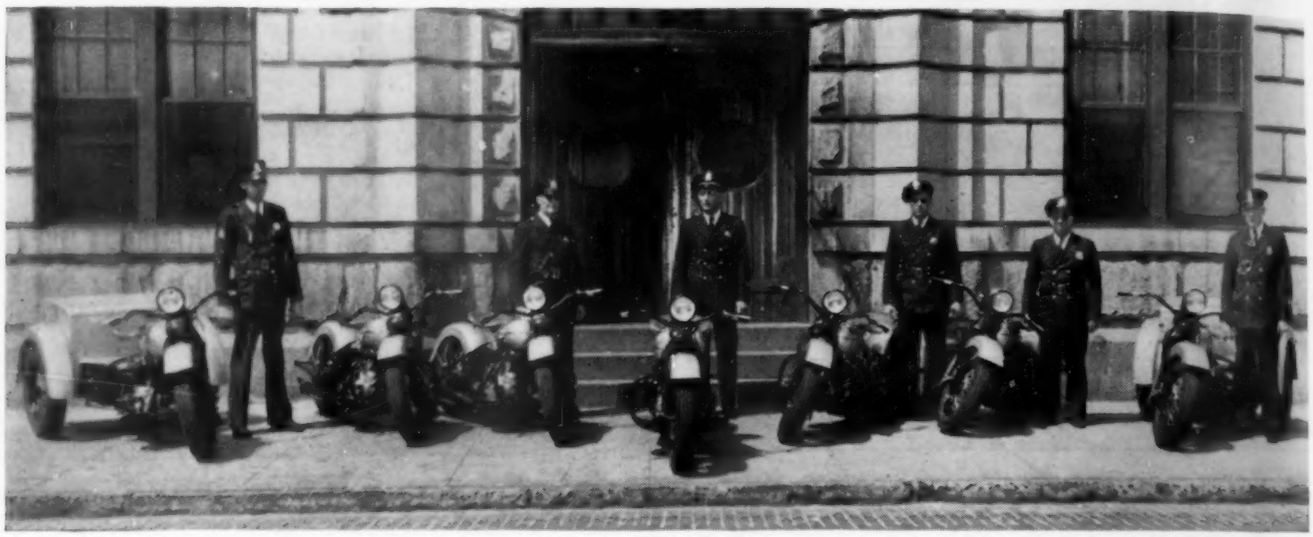


MEILI-BLUMBERG CORP.
Box AC-12 New Holstein, Wis.

MB MARKERS

A 5021-⅛

In Charleston, S. C...
It's HARLEY-DAVIDSONS Exclusively!



Charleston has used Harley-Davidsons exclusively since 1923. Shown here are two new Servi-Cars and five new Harley-Davidson Police Motorcycles recently acquired for use in Charleston's drive to reduce traffic violations and accidents.

Most Effective for Solving Today's Mounting Traffic Problems

LIKE many cities — large and small — throughout the country, the motorcycle squadron of Charleston, S. C., uses Harley-Davidsons exclusively. Police officials know from experience that no other method matches motorcycles for dealing with traffic accidents BEFORE they occur. With an alarming increase in traffic accidents — the eight month death toll through August of this year was 34 per cent above 1945 — the need for *accident prevention* is greater than at any time since the all-time high of 1941.

Extend the effectiveness of police manpower by equipping *your* squadrons with dependable Harley-Davidson Police Motorcycles and Servi-Cars. Through their outstanding efficiency and economy, they have established remarkable performance records in handling an exceptionally wide range of police duties. Call in your Harley-Davidson dealer today . . . get complete information about the superiority and many advantages of the new 1947 Harley-Davidson Police Motorcycles and all-purpose Servi-Cars.

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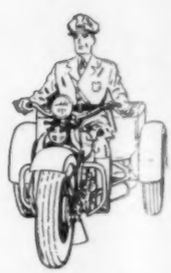
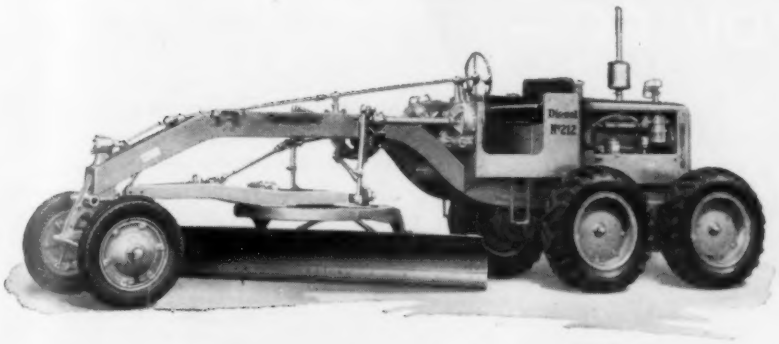


HARLEY-DAVIDSON
Police Motorcycles

Resume Production on No. 212 Motor Graders



Caterpillar's diesel No. 212 motor grader again in production. This is available in both tandem and single drives and has a 10-foot moldboard and leaning front wheels.

The "Caterpillar" diesel No. 212 motor grader is again in production, according to an announcement by the Caterpillar Tractor Co., Peoria, Ill. Production was suspended during the war to permit increased manufacture of products for the armed forces.

This motor grader, powered by a rear-mounted, 35-brake-hp, four-cylinder, four-cycle "Caterpillar" diesel engine is available in both tandem and single drives. A 10-foot moldboard and leaning front wheels provide the traction, strength, and blade positions to do a complete range of blade work. Positive-acting, precision-made, mechanical power controls provide fast, easy operation of blade and scarifier movements.

Smallest of three sizes of "Caterpillar" Series "12" motor graders, the No. 212 is built primarily for those whose work requirements do not warrant purchase of the larger models.

New Drinking Fountains For Rural Areas

This new drinking fountain, introduced by Baker Mfg. Co., was built for rural communities. It is built into a hand pump and operates from any well or from any similar source of water supply.

Areas outside the scope of public water systems can now have a new sanitary "drinking fountain pump" just announced by Baker Manufacturing Co., Evansville, Wis. Tests of the original model were made at a rural school near Westport, Wis.

The fountain, built on a modified hand-pump foundation, operates from any well or similar source of water supply. No pressure water system is necessary. A few strokes on the pump handle builds up sufficient pressure to allow a person to walk around to the front of the pump and take a drink without further pumping. The bubbler is at a convenient height for an adult person, and a step at one side provides a place for a child to stand while drinking. Excess water flows into the drain in the usual manner. A basin underneath provides a drinking place for animals and birds.

The new drinking fountain pump can also be used to fill a pail. Overflow water goes through a diversion pipe to a pail placed on the stand.

Recreation Consultant

Planning and consultation services are available to municipal authorities, recreation, park, or school boards, city planning commissions, city managers, and private organizations or individuals through Donald L. Kline of the National Recreation Association, 315 Fourth Ave., New York, N. Y. Engineers and other professional personnel may also utilize Mr. Kline's services on a consultation basis.

Mr. Kline, who is a designer, consultant, and a specialist in recreation buildings, areas, facilities, and structures, also offers long-range planning services and a yearly consultation service for communities. In making his analyses and recommendations, Mr. Kline consults with other members of the association's staff. The forty years' experience of the association is therefore made available to every community utilizing his services.

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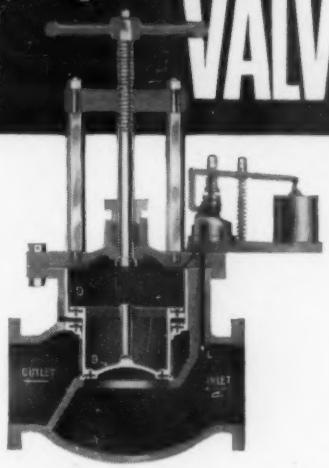

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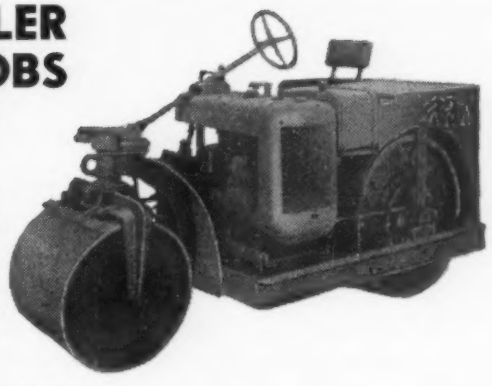

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Scarifying and Grading Streets at Newton, Ill.

Two diesel motor graders manufactured by the Caterpillar Tractor Co., Peoria, Ill., do the job of scarifying and grading streets preparatory to applying oil at Newton, Ill.

FWD Dealer Appointments

New appointments have been announced recently by the Four Wheel Drive Auto Co., Clintonville, Wis. Oscar Dolberg is now district sales manager for Indiana. Victor Anderson will be in charge of southern Illinois, and Harry Ringdahl will handle metropolitan Chicago. Missouri and Kansas have been assigned to C. E. Balun.

The Southern Equipment Sales, Ltd., 980 South State Street, Jackson, Miss., will be the distributor for southern Mississippi. The Illinois Road Equipment Co., 1310 East Jefferson St., Springfield, Ill., will be the distributor for central Illinois. And the Boyce-Curran Machinery Co., Inc., 2330 Florida Blvd., Baton Rouge, La., will distribute in the southern part of Louisiana.

A sharp increase in the production of FWD trucks has been scheduled by the management of the FWD Auto Co. Production, which reached an all-time peacetime high during the past year, will be doubled, company officials state.

Truck operators may obtain a set of sample forms with which to set up a simplified system of keeping operating cost records from the Cost Records Dept., Service Division, Four Wheel Drive Auto Co., Clintonville, Wis., according to M. E. Salzman, FWD cost analyst. The system was developed by the FWD Service Department during over thirty-five years of truck manufacture and repair and is offered as an aid to owners who want a simple cost-keeping system.

Both highway departments and transportation companies have found these simplified records to be a quick and accurate method of figuring costs. Only four forms are used: the daily driver's report, repair labor slips, the monthly report, and the yearly report.

At the end of each working day the driver fills out and turns in his daily cost report. This gives a running account of the truck's performance and forms the basis for the operating cost report.

Each time a truck is repaired, a repair labor slip is filled in. The annual report lists each month's operation separately and can be used as a basis for comparison.

The daily, monthly, and yearly reports are simple and easy to maintain yet cover all of the items that are essential to cost keeping. Totals arrived at in compiling the monthly and yearly operating cost records from the various trucks in a fleet supply an accurate basis for charging for outside work, for estimating future jobs, and for determining the relative efficiency of trucks. Excessive costs in fuel consumption, repair, etc., rapidly show up, and economy measures can be taken.

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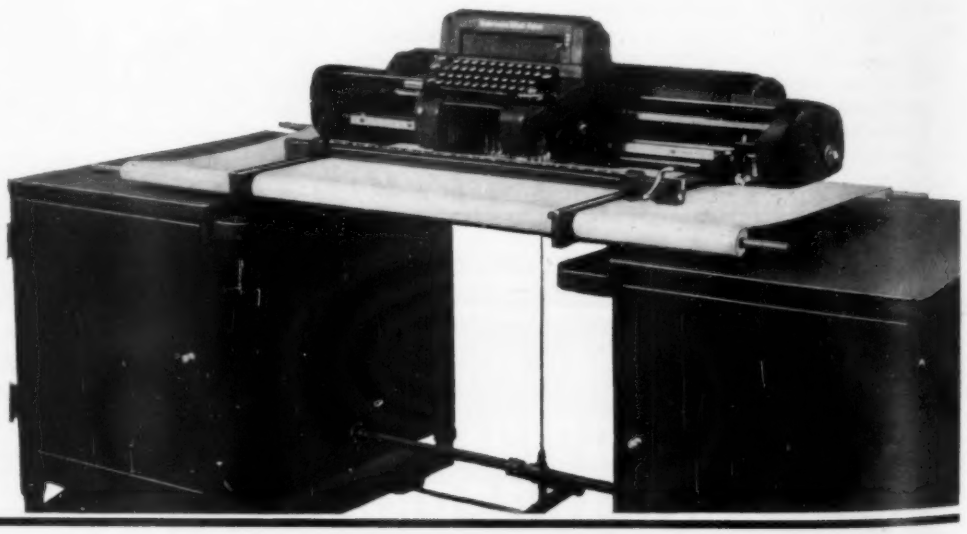

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Gar Wood Names De Marco to Post

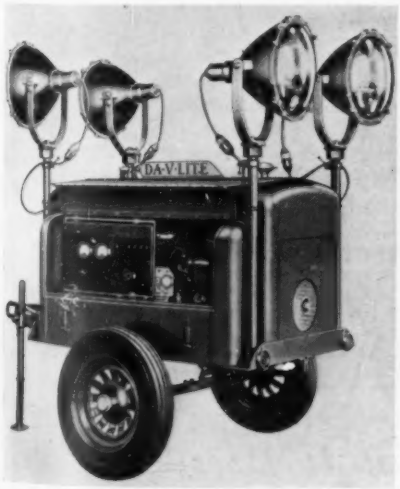
Thomas A. De Marco has been named executive assistant to John J. Bergen, chairman of the board of Gar Wood Industries, Inc., Detroit, Mich., according to a recent announcement. Mr. De Marco, who was formerly with United Aircraft Products Corporation, will have his headquarters in New York.

T. A. De Marco

A graduate of Massachusetts Institute of Technology with a degree in aeronautical engineering, Mr. De Marco served as an Air Corps major in the office of the Assistant Chief of Air Staff, Washington, D. C., where he was in charge of contract termination and disposal of surplus property. After discharge from service, he served as consultant to the Reconstruction Finance Corporation in the disposal of surplus aircraft.

Before entering the air force, he was connected with the Chapman Valve Manufacturing Co., Springfield, Mass., and then became western New England sales engineer for Johns-Manville Sales Corporation.

New Portable Light-Power Units



The new Da-V-Lite portable floodlight, equipped with four heavy-duty lights providing 185,000 candlepower per light.

Production of four new DA-V-Lite portable lighting and power units has just been announced by Paul H. Davey, president, Davey Compressor Co., Kent, Ohio. Each is built around a 5,000-watt Westinghouse AC generator driven by a 15-hp, 4-cylinder, Wisconsin air-cooled engine.

The four standard models are floodlight, searchlight, combination, and beacon. All are available in skid and two-wheel spring trailer mountings. Floodlight models are designed to light large areas and are equipped with four heavy-duty Westinghouse 16-inch floodlights providing 185,000 candlepower per light. Each light is individually operated from the control panel and can be raised to a height of 8 feet 6 inches.

Searchlight models are suitable for spotting specific restricted areas, and are equipped with two Westinghouse 18-inch searchlights furnishing 1,965,000 candlepower per light. Optional auxiliary transformer equipment will boost the candlepower to 3,225,000 per light.

Combination models are designed for both "worklighting" and "spotlighting." They have two 16-inch floodlights and two 18-inch searchlights.

Beacon models are for special directional lighting; each unit has one 24-inch Westinghouse 11,280,000-candlepower searchlight.

In addition to their lighting uses, all four models can be employed in case of an emergency, to supplement existing power facilities or to provide motive power for electric tools. The lights are distributed by Davey dealers or by branches of the Westinghouse Electric Supply Co.

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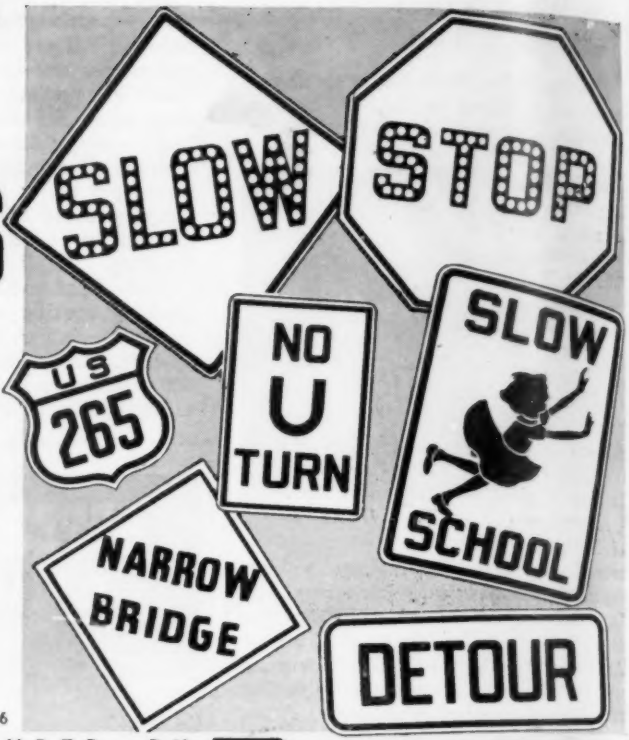

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Work Begins on Veterans' College Housing

Out at the University of Utah they are building dormitories to house fifty veterans enrolled there under the GI Bill of Rights. Work consists of moving 2,500 yards of dirt in the excavation and backfilling of sewer trenches for dormitories, and this Allis-Chalmers crawler equipped with a Buckeye bulldozer is doing its share. The dormitory buildings were quartered and moved forty miles from the Geneva steel plant near Provo, Utah, where they formerly housed defense workers.

New President for Link-Belt

George P. Torrence was made president recently of the Link-Belt Co., Chicago, Ill., succeeding William C. Carter. Mr. Torrence has been executive vice-president since July of this year.

G. P. Torrence

Mr. Torrence, in addition to his experience with Link-Belt, was general manager of Rayon Machinery Corporation, a subsidiary of Industrial Corp., from 1936 to 1944, and president of Cleveland Pneumatic Tool Company from 1944 to 1946. He joined Link-Belt in 1911 as a draftsman in Indianapolis after having spent a year in Arkansas with the Ayer & Lord Tie Co. and two years in the Pittsburgh shops of Westinghouse Air Brake Co.

In his twenty-five years with Link-Belt, Mr. Torrence has served in various capacities, including that of manager of the Indianapolis operations from 1926 to 1932 and president from 1932 to 1936.

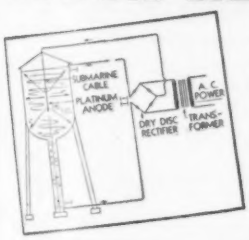
Mr. Carter, president since December 1942, has retired in accordance with the company's retirement plan. He will continue as a director of the company and chairman of the executive committee of the board.

Blaw-Knox Awarded Piping Contract

The city of Los Angeles, in an expansion of its power plant facilities, has awarded to the Power Piping Division of Blaw-Knox Co., Pittsburgh, Pa., a piping contract of approximately $400,000. This will cover the supply and installation of all the piping to be used in a new steam turbine electrical power unit.

This is the second high-pressure unit to be installed in the city's harbor steam plant and is reported to be a duplicate of the first installation made in 1941 by Blaw-Knox.

RUSTA RESTOR *Prevents Rusting*



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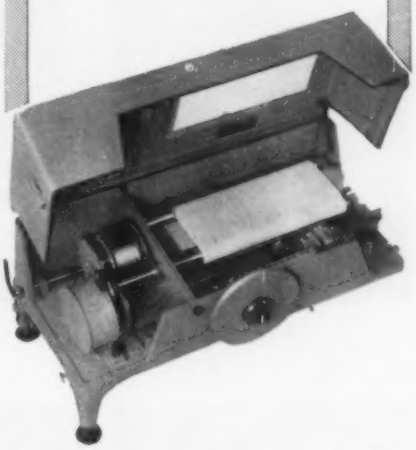

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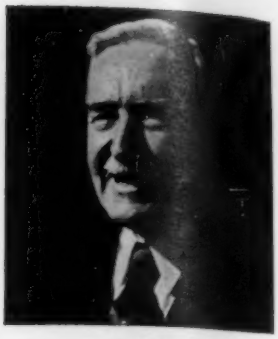

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Name _____ Position _____

Address _____

Protection Against Corrosion

290. A factual technical bulletin published by the Amercoat Division, American Pipe and Construction Co., P. O. Box 3428, Terminal Annex, Los Angeles 54, Calif., tells how to protect against corrosion and contamination. It gives the proper Amercoat coating for such places as the interior of pumping chambers, manholes, clarifiers, bar screens, piping, hand rails, steel sash, steel and concrete water towers, and pools and shower rooms. To obtain this bulletin write to the Amercoat Division, mention THE AMERICAN CITY, and ask for the Amercoat coating chart.

Keep Roads Free of Ice and Snow

291. Street and highway maintenance departments will be interested in the booklet entitled "Snow and Ice Removal on Highways, Streets & Airport Runways," published by International Salt Co., Inc., Dept. AC-12, Scranton, Pa. The pamphlet outlines recommended application procedures for using rock salt to do a speedy, complete job of ice and snow removal at low cost. The booklet tells how safe driving surfaces may be obtained by keeping winter traffic arteries free of dangerous snow and ice.

How Good Are the Bulbs in Your Street Lighting System?

292. Does your street lighting provide the proper traffic sight required? Utility Lamp Division, McHugh Products, Brooklyn, N. Y., will send you information on its utility lamps illustrating the sound engineering, precision manufacture, and tests and inspections that assure unfailing performance.

Centrifugal Pumps

293. Here is a centrifugal pump that features non-recirculating priming with no gadgets to clog up; only two working parts to replace; long-wearing seal. Carver Pump Co., Muscatine, Iowa, will send you a catalog on its pumps, which are offered, with a choice of power and mountings, in sizes from 1½ to 10 inches.

Engines for Standby Power

294. If you are considering installation of standby power equipment you will want information and bulletins from the Climax Engineering Co., Clinton, Iowa, showing what its engines can do for you. These 4-, 6-, 8-, and 12-cylinder, 4-cycle types are often used also as primary power units. These engines operate on either natural gas or by-product gas, as well as on butane or gasoline.

Hydraulic Demounter for Tires

295. You can demount tires on your municipal vehicles from 7.00-15 to 24.00-24 without damage to tires, tubes, wheels, or rim. Lee Engineering Co., Pawtucket, R. I., will send complete information on the Presto hydraulic demounter, which develops and withstands pressures in excess of 60,000 lbs.

How to Increase Capacity Of Water Distribution

296. Have you ever stopped to think how cleaning water mains will increase the capacity of your distribution system? Flexible Underground Pipe Cleaning Co., 9059 Venice Blvd., Los Angeles 34, Calif., will send data on how they can help you with your pipe cleaning problems.

Valves and Hydrants

297. Water works and sewage treatment officials will be interested in data and catalogs from the Iowa Valve Co., Hubbell Bldg., Des Moines, Iowa, on its valves and equipment for water works and for filtration and sewage disposal plants.

Parking Meters

298. If your traffic control plans include metered parking you will want to see the information Mi-Co Meters, 235 Court St., Covington, Ky., has available on the dependability and low maintenance cost of its parking meters. They will send you complete specifications and case histories on many installations.

Pumps Perform Under Pressure And Temperature Stresses

299. If you are looking for a high-grade pump for use under stress of high pressures and high temperatures you will want information from the Peerless Pump Division, Food Machinery Corp., 301 West Avenue 26, Los Angeles 31, Calif., for more data about the advantages of the Peerless horizontal centrifugal pumps. These general-service, continuous-duty pumps have a wide range of sizes and capacities up to 60,000 gpm.

Collection Bodies for Compactible and Non-Compactible Refuse

300. Leach Co., Oshkosh, Wis., offers municipalities two different refuse collection bodies to simplify collection of compactible and non-compactible refuse. In addition, information shows that both these bodies feature low loading height, automatic loading, closed body, and streamlined appearance.

Handling Materials Quickly and Cheaply

301. Wherever materials have to be transported or stacked indoors, a new battery powered economical high lift unit will add speed and smoothness and subtract drudgery from municipal stores handling. In asking for information on the "Transtacker," request also complete facts about Automatic Fork Trucks. This will give the complete story on moving commodities and equipment in stores, and municipal yards and plants. Address Department W, Automatic Transportation Co., 147 W. 87th Street, Chicago 20, Ill.

Motor Graders

302. J. D. Adams Mfg. Co., Indianapolis 6, Ind., points out in their literature four distinct advantages of its motor grader for municipal operation. They will be glad to send you information on the push-button starting feature, the positive mechanical controls, the high-arch front axle, and the eight forward speeds.

Automatic Drainage of Hydrants

303. The construction of this hydrant is such that it helps guard against freezing. The Ludlow Valve Mfg. Co., Inc., Troy, N. Y. will send you data about the hydrant, which is equipped with a brass drip valve located at the lowest point in the barrel, which opens automatically as the hydrant shuts off and insures complete and positive drainage at all times.

How to Locate Buried Pipe Quickly

304. To help you eliminate the guesswork in pipe laying and maintenance, Allen-Howe Electrics Corp., 150 Main St., Peabody, Mass., will send you circular AC:11, giving complete details on its pipe locator. This portable machine locates buried pipe quickly and accurately and does away with the need of excavating.

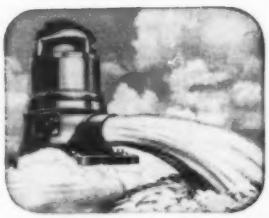
Motor Trucks

305. Ford Motor Co., Dearborn, Mich., will send you information showing why its Ford trucks are famous for endurance under severe conditions of service. The company points to such features as hardened valve seat inserts that resist pounding and pitting, precision set valves that need no adjusting, and valve springs that are shot-peened and rust-proof. Aluminum alloy four-ring pistons maintain good compression and save oil. Full pressure lubrication, effective crankcase ventilation, scientifically correct cooling, and efficient oil and air filtering prolong engine life.

(Continued on page 21)

Ask EL DORADO, ARK.

About Layne Water Systems



HIGHEST EFFICIENCY

Layne Vertical Turbine Pumps are now available in sizes to produce from 40 to 16,000 gallons of water per minute. Their high efficiency saves hundreds of dollars on power cost per year.

El Dorado, fabulous oil city of Arkansas—alive, growing and becoming a greater and greater industrial center, knows, likes and depends exclusively on Layne Well Water Systems. The City, Oil Refineries, Railroads, Power & Light Services and various Petroleum Industries—all—100 per cent, have Layne Well Water Systems. Such a record means that the name, Layne, stands for a high efficiency, longer life, superior quality and proven operation economy.

Layne high efficiency Well Water Systems are world famous in advanced engineering features—world proven in lasting quality and the lowest of all in operation cost. Each unit is specifically designed, manufactured and installed to fulfill your exact requirements.

If your city, industry, railroad, air conditioning or irrigation project is in need of more water at greater economy, write for late catalogs, bulletins, etc. Address

LAYNE
AFFILIATED COMPANIES

Layne-Arkansas Co., Stuttgart, Ark. ★ Layne-Atlantic Co., Norfolk, Va. ★ Layne-Central Co., Memphis, Tenn. ★ Layne-Northern Co., Mishawaka, Ind. ★ Layne-Louisiana Co., Lake Charles, La. ★ Louisiana Well Co., Monroe, La. ★ Layne-New York Co., New York City ★ Layne-Northwest Co., Milwaukee, Wis. ★ Layne-Ohio Co., Columbus, Ohio. ★ Layne-Pacific, Inc., Seattle, Wash. ★ Layne-Texas Co., Houston, Texas ★ Layne-Western Co., Kansas City ★ Layne-Western Co., of Minn., Minneapolis, Minn. ★ International Water Supply, Ltd., London, Ontario, Canada ★ Layne-Hispano Americana, S. A., Mexico, D. F.

LAYNE & BOWLER, INC.
General Offices
MEMPHIS 8, TENN.

LAYNE

WELL WATER SYSTEMS
VERTICAL TURBINE PUMPS

Stop—Check and Mail

Use Coupon on Page 19

Safety Materials for Traffic Markers

306. Bulletin 746 from the Prismo Safety Corp., Municipal Division, Huntingdon, Pa., contains valuable data on economical safety materials for municipal use. The folder illustrates the use of Prismo products for reflective traffic lines, for reflective airfield marking, for factory-made reflective traffic signs, and for making your own reflective signs.

Street Lighting Standard With New Slant

307. An important part of adequate street lighting is your street lighting standard. The Union Metal Manufacturing Co., Canton 5, Ohio, will send you complete details on its latest standard, which incorporates a new development in street lighting brackets —a single bend bracket with a 45° slant, making for easier wiring, proper light distribution, and a more attractive appearance.

Here Is a Meter for Your Parking System

308. Accuracy, rugged strength, simple operation, and a minimum of servicing is what its automatic meter offers, according to the Karpark Corp., Cincinnati 6, Ohio. Write for facts about this meter that will point out how your city will be benefited.

Counting Machines for Parking Meter Coins

309. Cities with parking meters will be interested in the Abbott coin counting machines because they simplify accounting of receipts. Abbott Coin Counter Co., 143 St., and Wales Ave., New York 54, N. Y., will send you complete information about these machines, which count and wrap money taken in from parking meters.

Ozone for Water Systems

310. If your water-works customers desire a more potable and palatable drinking water, you will want data from Ozone Processes, Inc., 1500 Walnut St., Philadelphia 1, Pa., about ozonation. Information is available showing how the use of ozone reduces the chemical dosage to the minimum to get rid of tastes, colors, and odors, particularly those of phenolic and decaying vegetation origin. To demonstrate the ozone process and investigate treatment problems on the spot, the company has a mobile laboratory and treatment unit mounted on a trailer.

Sanitary Garbage Disposal Bodies

311. Before making any additions to your garbage collection and disposal equipment you will want to have information from The Heil Co., Milwaukee 1, Wis., about its Colecto-Pak. You will be interested in the features of this all-enclosed, water-tight, refuse disposal body, which will help you maintain a sanitary means of collecting garbage.

Veteran Diesel Tractors and Graders

312. "Diesels With Endurance" a 24-page color booklet published by the Caterpillar Tractor Co., Peoria 8, Ill., spotlights the durability of highway construction and maintenance machinery over long periods of operation. Replete with action pictures of veteran Caterpillar diesel units, the book presents an interesting portrayal of endurance marks by machines, some of which are no longer on the production line, that are still serving after 15,000 to 50,000 heavy hours.

Air-Cooled Gasoline Engine

313. Clinton Sales Co., Donovan Bldg., Detroit 1, Mich., will send information on its series 700, 1½-hp, 4-cycle air-cooled gasoline engines. Important features include a fully adjustable governor; an airplane-type magneto ignition; a weight (37 pounds) that permits wide use; and an easy-starting, float-fed-type carburetor complete with bowl strainer with shut-off.

Pipeline Equipment, Leak Detectors

314. All water works men in the East, interested in pipe line equipment as well as the Fisher M-Scope and leak detectors, can obtain valuable information from Joseph G. Pollard Co., Inc., 141 Ashland Pl., Brooklyn 1, N. Y.

Replacement Parts for Pipe Cutters

315. If your pipe cutter needs replacement parts, Ellis & Ford Mfg. Co., 148 South Woodward Ave., Birmingham, Mich., will send you information on any parts that need replacement. All parts are interchangeable with Ellis & Ford cutters.

The Fire Alarm Factor

316. Does your municipality have a fire alarm system that measures up to the equipment in your fire houses? The Gamewell Co., Newton Upper Falls 64, Mass., will send you a copy of "The Fire Alarm Factor" that will help you evaluate your alarm system and will show how a modern alarm telegraph system assures accessibility, reliability, and promptness.

Sewer Pipe

317. Bulletin TR-21-A from Johns-Manville, Box 290, New York 16, N. Y., gives complete details on Transite sewer pipe for gravity lines. The description points out that sleeve-type joints stay tight; the pipe's high-flow capacity often permits flatter grades wih substantial reductions in trenching costs; asbestos-cement composition makes it corrosion resistant inside and out; and the tight joints guard against root trouble.

Treatment of Water and Sewage

318. Here is a disinfectant that will find many uses in your municipality. In addition to its disinfecting, deodorizing and generally sanitary qualities, Pittchlor, a high-test calcium hypochlorite, is especially suitable for the chlorination of water and the treatment of sewage. Write Pittsburgh Plate Glass Co., Columbia Chemical Division, Fifth Ave. at Bellefield, Pittsburgh 13, Pa., for literature.

Permanent Traffic Lines

319. Bulletin C-50 from the Flexible Road Joint Machine Co., Warren, Ohio, will give you data on achieving a permanent traffic line when building new concrete streets. The Flex-Plane traffic marker kneads coloring or pigment into the surface of the concrete when plastic, thus producing a permanent line.

How to Increase Well Water Supply

320. Layne & Bowler, Inc., Memphis 8, Tenn., will send you new catalogs and other illustrated literature on its well water systems for providing additional water in your municipality. Information can also be secured on Layne vertical turbine pumps, now available in sizes to produce from 40 to 16,000 gallons of water per minute.

A Bucket Loader for Stock Pile Work

321. The Barber-Greene bucket loader is designed especially for picking up material from stock piles and loading trucks or processing equipment. Barber-Greene Co., Aurora, Ill., will send you catalog No. 82, which illustrates and describes the various loaders.

How to Haul, Spread, and Dump With One Truck

322. If you would like to haul, spread, and dump with one truck you will want illustrated literature being offered by The Flink Co., Dept. 671, Streator, Ill., on its self-feeding spreader. (See page 71, November issue of THE AMERICAN CITY.) The Flink spreader is especially suitable for ice control work. Cab control will permit your driver to treat dangerous spots without stopping the truck.

Soda Ash Information

323. Of interest to both operators and technical men in industries using soda ash is Bulletin No. 5 "Soda Ash" offered by Solvay Sales Corp., 40 Rector St., New York 6, N. Y. This new 64-page bulletin contains chapters on the properties of soda ash; bulk shipments, storage, conveying and elevating; weighing, proportioning and feeding devices; sampling and analysis; precautions, and conversion tables.

Jail and Prison Equipment

324. Officials interested in jail and prison construction can secure information from The Stewart Iron Works Co., Inc., 1321 Stewart Block, Cincinnati 1, Ohio. The literature includes descriptions of jail layouts, gives estimates, and includes complete information on grating and plate cells, doors, locks and locking devices, bunks, tables, seats, and other accessories for new construction or remodeling of old prisons.

Hangars to House Small Planes

325. Municipal airports that accommodate small planes will be interested in data from the Luria Engineering Corp., 500 Fifth Ave., New York 18, N. Y., on its new all-purpose hangars for these planes. These hangars attain a flexibility that makes them adaptable for combination use through adjustments of length in 20-foot increments and a choice of door and window arrangements.

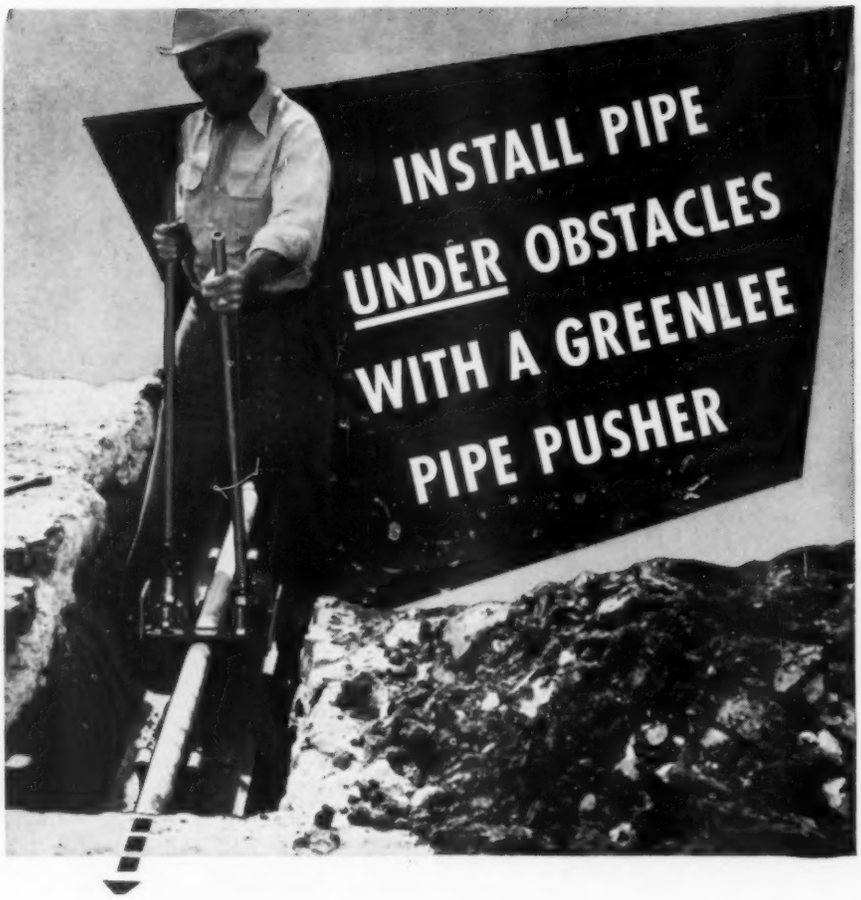
You Can Get Some Steel Products

326. Joseph T. Ryerson & Son, Inc., Chicago, Ill., are offering prompt delivery on steel products available at the present time. Bars, shafting, structurals, plates, tubing, reinforcing bars, wire mesh, alloys, and stainless steel are some of the products available. If you need help on steel selection and application, the company's staff of engineers and metallurgists will be glad to help you.

Cleaning Equipment Makes Sewers Efficient

327. For sewer cleaning operations municipal officials will be interested in sewer rods and accessories which are joined together with a dual lock forming a rigid chain that will float and can be coupled or uncoupled on the street if desired. Expanding Sewer Machine Co., Nappanee, Ind., will send you, on request, a catalog about its complete line of sewer cleaning equipment.

(*Continued on page 22*)

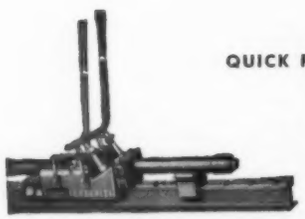


Cut costs, save time on underground pipe installations. With a GREENLEE Hydraulic Pipe Pusher *one man* can push pipe through the ground *easily, quickly*—under obstructions!

Save the time, work and inconvenience to all caused by the old methods of tearing up floors, lawns and pavement. Eliminate tedious back-filling, tamping, tunneling, re-paving (just a short trench accommodates the pusher.)

Save with the GREENLEE, which often pays for itself on the first few jobs used. Learn all about this compact, portable, powerful pipe installing equipment . . . get free Folder S-117. Greenlee Tool Co., Division of Greenlee Bros. & Co., 2032 Columbia Avenue, Rockford, Illinois, U. S. A.

REGISTERED TOOLS
GREENLEE
FOR THE CRAFTSMAN



QUICK FACTS ABOUT THE GREENLEE HYDRAULIC PIPE PUSHER

Easy—one or two men can easily operate on any job. *Portable*—compact, easy to carry to job and set up. *Fast*—operates at six different speeds. *Two models*—(1) for pipe up to 4-inch; (2) for larger pipe, drainage ducts, concrete sewer pipe. Do the job easier, quicker with a GREENLEE.

Check Your Wants
Use Coupon on Page 19

Primers and Air Release Valves for Filter Plants

328. Automatic power or tank primers and air release valves for filter pipe lines, distribution lines, and other uses is the subject of literature being offered by Valve and Primer Corp., Room 366, 111 W. Washington St., Chicago, Ill.

Garbage Collection Bodies Are Easily Loaded

329. If present collection facilities in your city result in high lifting, inadequate truck covers, and inefficient loading, you will be interested in literature from Brown Steel Tank Co., 2901 S. E. Fourth St., Minneapolis 14, Minn., on the collection bodies they build. These fully-enclosed bodies have low-lift doors, a hydraulic lift mechanism which compacts the load in order to have space free at the door for easy loading, and a hydraulic hoist which empties the bodies easily. These special features result in reduced crews and put the trucks back in service faster, the company declares.

Dry Fire Hose Safely

330. Its fire hose dryer saves drying time and reduces hose stretch according to literature from the Circul-Air Corp., 575 E. Milwaukee St., Detroit 2, Mich. Municipal fire department officials will find that this dryer also prevents mildew and rot, allows for improvement in building design, and air-conditions as it dries.

Clay Pipe for Sewers and Drains

331. "Sanitation and Drainage with Clay Pipe," which may be obtained from the Clay Sewer Pipe Assoc., Inc., 1105 Huntington Bank Bldg., Columbus 15, Ohio, shows the use of clay pipe for sewers, drains, and extra heavy loads. Illustrations are given of the various available types and connections, and the booklet points out that the pipe will not rust, corrode, or decompose.

How to Keep Cars on the Road

332. Tuthill Spring Co., 760 Polk St., Chicago 7, Ill., will send you literature that will give you a good idea of how you can offer your community proper protection on such danger spots as steep shoulder grades, sharp curves, and narrow bridge approaches. The Tuthill Safety Hyway Guard is an extra-strong convexed steel rail mounted on overload cantilever-type springs, which are bolted to the posts at the point of greatest strength near the ground line. Its resiliency cushions the shock of the impact and deflects the car back to the road.

Cities Profit by Water Main Cleaning

333. If you are interested in providing better water service for your consumers, you will be interested in what the National Water Main Cleaning Co., 50 Church St., New York 7, N. Y., has to tell you about the results other cities have obtained from its main-cleaning procedure.

Cans and Carriers for Street Sweeping

334. Officials in charge of street cleaning operations will be interested in literature from the Tarrant Manufacturing Co., Saratoga Springs, N. Y., on its line of cans and carriers for street sweeping purposes. The folder illustrates the various features of this carrier which is available in three types, one with a dumping scoop, one without a scoop, and another with a double scoop. The folder also illustrates refuse receptacles for municipal use.

(*Continued on page 24*)

From one end of the world to the other, you'll find Gar Wood Hoists and Dump Bodies in action. The reason? They're designed, engineered, and built to do specific jobs, *no matter how tough*. Hydraulically operated, with simple controls... they dump *cleanly, quickly,* and *easily*... make it possible to get to the next job faster.

No matter what kind of material you work with... sand, gravel, rock, coal, or construction materials... there's a Gar Wood Hoist and Dump Body to make the job easier... help you make money, faster.

Gar Wood Hoists and Dump Bodies have been, and are constantly being proven all over the world on the toughest jobs. For *your* next job, specify Gar Wood.

ROAD MACHINERY
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WINCHES AND CRANES

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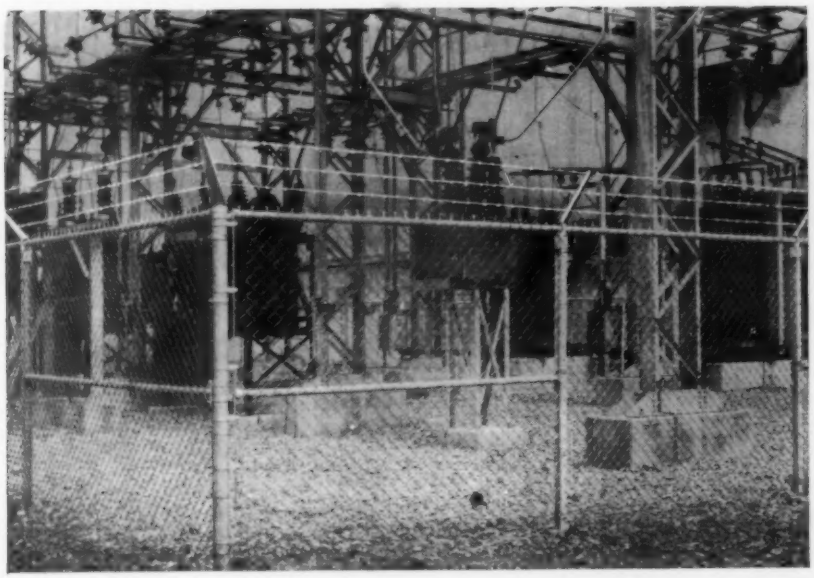
INDUSTRIES



Take these two steps for Better Project Protection

1. **Include good fencing in the plans:** It gives you protection right from the start. It enables you to get maximum harmony with your landscaping. It simplifies the fence installation . . . and sometimes effects cost economies, too.
2. **Specify Cyclone Chain Link Fence:** It assures you years of sturdy, trouble-free protection. Posts stay in line. Gates don't drag. The fencing stays taut. These and other outstanding features of design, construction and installation have made Cyclone the world's most widely used property protection fence.

Our engineers are available, without obligation, to help you choose the right type of fence for the job. Cyclone makes fourteen types, to meet your every requirement. Whether your immediate job is a power plant, waterworks, park, playground or pool, you will find it pays to put U·S·S Cyclone Fence in your original plans.

Send for FREE 32-page Book. Profusely illustrated. Full of facts and specifications. Complete information on different types of fence, gates, athletic field equipment, etc. Just mail the coupon.

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Please send me, free of charge, your 32-page book on Fence.

Name.....

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City..... State.....

Title or official capacity.....

UNITED STATES STEEL

Check Your Wants
Use Coupon on Page 19

Position Recorder for Remote Registration

335. Here is a recorder that has a multitude of uses. It records and indicates water levels, gate positions, valve openings, heads on turbines and pumps, or the remote registration of the position of any moving element. Leupold & Stevens Instruments, 4445 N. E. Glisan St., Portland 13, Ore., will send you a copy of bulletin No. P15, which gives you complete details on the Type PAV position recorder for remote registration.

What Prechlorination Will Do for Your Water

336. Prechlorination used in your water works plant will not only increase filter runs, but the free chlorine residuals from the prechlorination will also improve coagulation, eliminate algae from storage basins, and help you meet new USPHS standards of water quality. Write Wallace & Tiernan Co., Inc., Newark 1, N. J., for further information.

Centrifugals with Seal Oil System

337. A special feature of the TLB single suction, single stage, centrifugal pump is a unique seal oil system which means no leakage of inflammable liquids through the seal chamber. Byron Jackson Co., Los Angeles 54, Calif., will send you further information on this pump. A description is given of the special two-compartment oil tank, connecting pump discharge and seal chamber, which keeps the seal chamber filled with oil at discharge pressure but isolated from pumped liquid.

Keep Sewer Lines Cleaned

338. Sewage treatment officials will be interested in literature from the Champion Corp., Hammond, Ind., pointing out the benefits of properly cleaned sewer lines. The OK Champion power sewer cleaner cleans any size sewer, taking dirt from the line to the street in one operation.

Pre-Cast Concrete Manhole

339. If you have any manhole jobs coming up in your community, write Universal Concrete Pipe Co., 297 South High St., Columbus 15, Ohio. This company will send you a folder giving you a step-by-step picture of how concrete pipe has been adapted for standard manhole construction on one municipal sewer project. The folder also contains details on the many features of the company's pre-cast concrete manhole.

Street Lighting Luminaire

340. Designed to provide high efficiency in street lighting with distribution through a predetermined pattern is the L-M Spherolite luminaire designed by the Line Material Co., Milwaukee 1, Wis. A new 27-page bulletin has been issued by the company giving complete construction details as well as installation data. The hood and reflector of this luminaire are aluminum, making the unit light in weight and resistant to corrosion. The luminaire meets all mounting requirements.

Speed Election Returns

341. How long did it take for election returns to come in from outlying districts on November 5? Automatic Voting Machine Corp., Jamestown 55, N. Y., will send you information showing how you can speed your returns through the use of automatic voting machines. You can have the results a few minutes after the last vote has been cast.

(*Continued on page 28*)

Newest

LEAK CLAMP

(FLEXIBLE PIPE REPAIR CLAMP)

offers these advantages

1. **EASIER TO INSTALL**
   50% less bulk than some older types makes it easier to install.
2. **MORE FLEXIBLE**
   Band is flexible and conforms to any shape or irregularities of the pipe.
3. **BETTER SEALING**
   Due to uniformly snug fit of copper band and gasket.
4. **SAFEST**
   Lugs do not exert collapsing pressure on thin walled or weakened pipe.
5. **ALMOST 100% WRAP-AROUND**
   Unique Smith-Blair method of anchoring band to clamps gives maximum wrap-around.

ENDURING...
as the pipeline itself!

Furnished complete with rubber gasket and zinc plated bolts for ½ through 24-inch outside diameters. For use on standard, riveted, O. D., cast iron, or asbestos-cement pipe. Band widths 1½ to 30-inches in multiples of 3-inches. When ordering specify O. D. of pipe—width band wanted—and if for low, medium or high-pressure lines.

Smith-Blair, Inc.

Water Works Supplies and Specialties

SOUTH SAN FRANCISCO • CALIFORNIA

Several exclusive distributor territories available. Write for details.

Immediate Delivery!

Order from Distributor Stock

ARIZONA
Phoenix, *Crane Co.*
Tucson, *Crane Co.*

ARKANSAS
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CALIFORNIA
Los Angeles, *Crane Co.*
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Santa Ana, *Crane Co.*

CALIFORNIA—continued
San Bernardino, *Crane Co.*
San Francisco, *Dallman Supply Co.*
San Diego, *Industries Supply Co.*

COLORADO
Denver, *Thompson Pipe & Steel Co.*

IDAHO
Salt Lake City, *Waterworks Equip. Co.*

KANSAS
Kansas City, *F. L. Carswell Mfg. Co.*

LOUISIANA
Shreveport, *Viking Supply Co.*

MISSOURI
Kansas City, Kans., *F. L. Carswell Mfg. Co.*

MISSISSIPPI
Jackson, *Viking Supply Co.*

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Lincoln, *Western Supply Co.*

OKLAHOMA
Oklahoma City, *Crane Co.*
Tulsa, *Crane Co.*

OREGON
Portland, *Waterworks Supply Co.*

TENNESSEE
Memphis, *Viking Supply Co.*

TEXAS
Waco, *The Rohan Co.*

UTAH
Salt Lake City, *Waterworks Equip. Co.*

WASHINGTON
Seattle, *Marchmann & Williams*

ALSO . . . BRONZE SERVICE CLAMPS • STEEL & C. I. FLEXIBLE COUPLINGS • FLEXIBLE REDUCING COUPLINGS

LUBBOCK 14th City in Texas

to Adopt the Drott Bullclam Shovel Method of Sanitary Fill . . .

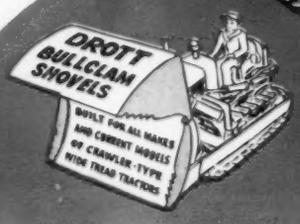
Above: Lubbock's new Sanitary Fill is on its old open dump site. Drott Bullclam Shovel handles cleaning up of old dump and construction of new Sanitary Fill. Finished section in foreground, part of old dump in background.

Below: All rubbish is completely compacted, all trenches dug, all refuse covered by the Drott Bullclam Shovel — no other equipment needed.

LUBBOCK, deep in the heart of the Texas plains country, a thriving community of 35,000 people, is another progressive city to adopt the Drott Bullclam Shovel Method of Sanitary Fill. Makes 14 cities in Texas alone now using this neat, healthier, more economical method of refuse disposal.

Cities in all parts of the country are finding the Drott Bullclam Shovel is *the* answer to its garbage disposal problems. If you haven't investigated it will pay you to do so NOW! Close your open dump for good . . . for the good of your community. Let us tell you how easily it can be done. Write, wire or call.

Operated by DROTT POSITIVE CLOSED HYDRAULIC SYSTEM • SMOOTH • QUICK • DEPENDABLE. Keeps dirt and air out . . . keeps oil in! Used successfully on Drott equipment for many years.



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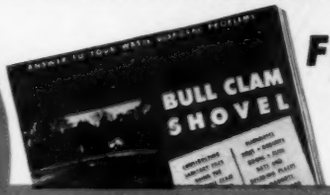
UNIVERSAL
EQUIPMENT



FREE

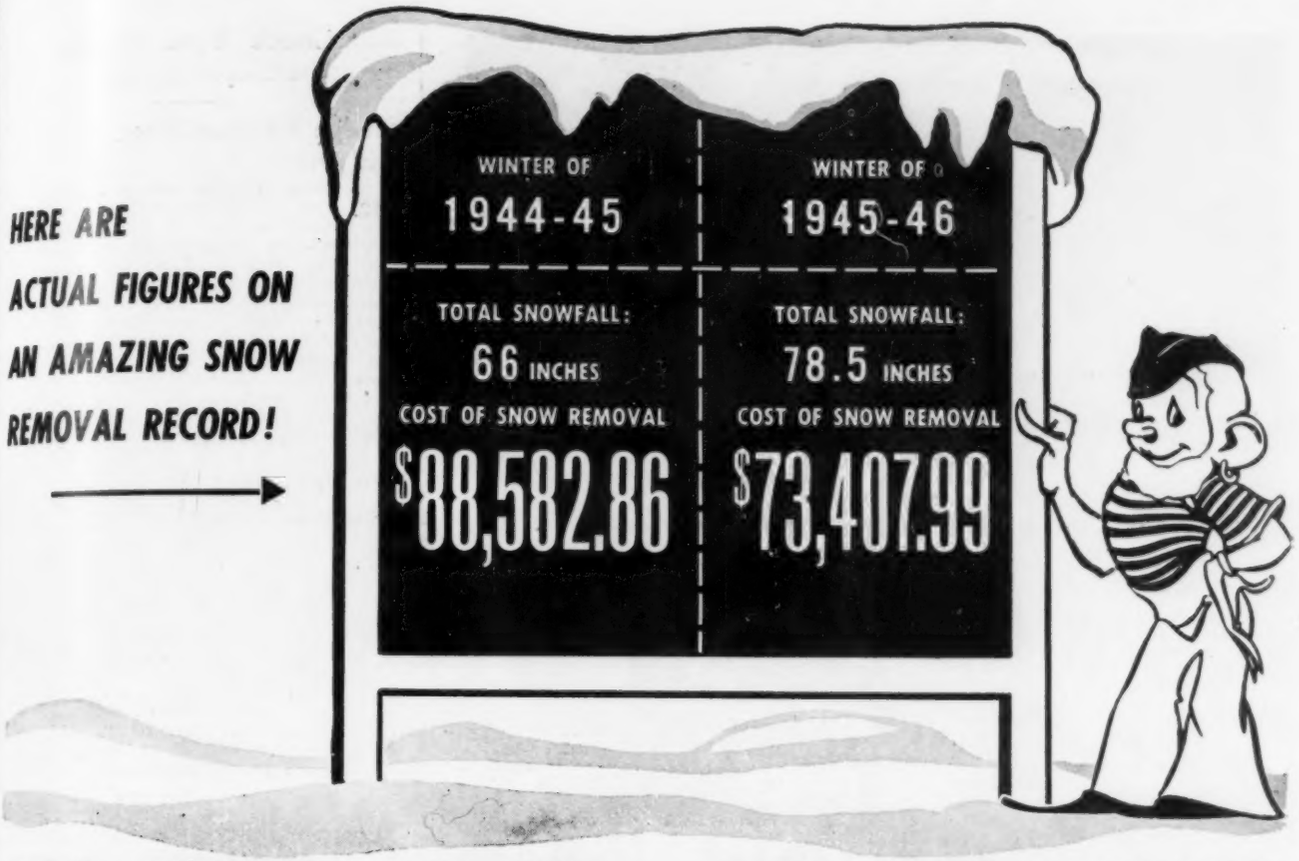
Get the Complete Story! Send for This Book—"Answer To Your Waste Disposal Problems . . . With the Drott Bullclam Shovel."

DROTT MANUFACTURING CORP.

(FORMERLY HI-WAY SERVICE CORP.)

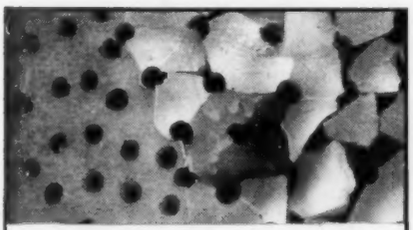
4344 N. GREEN BAY AVE. MILWAUKEE 12, WISCONSIN

HERE ARE ACTUAL FIGURES ON AN AMAZING SNOW REMOVAL RECORD!



20% MORE SNOW . . . 30% LESS COST!

. . . thanks to STERLING "Auger-Action" Rock Salt!



Sterling "Auger-Action" at work

- ★ Assures quick removal
- ★ Saves labor and equipment
- ★ Makes driving safe

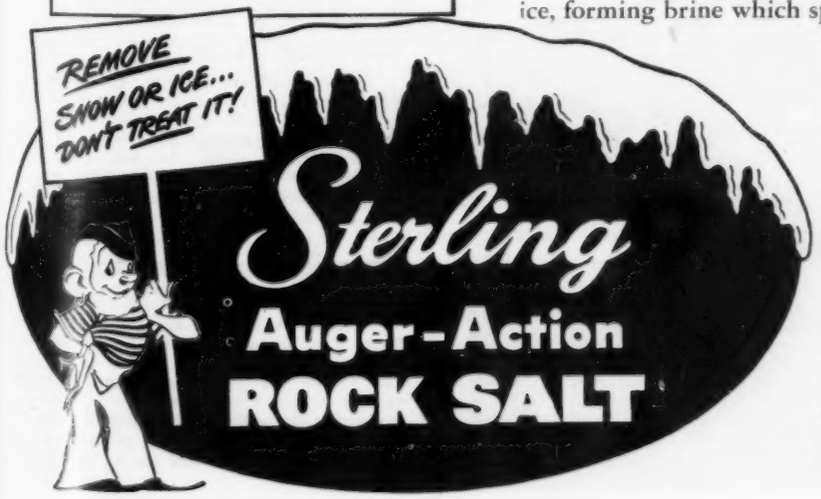
Statistics tell the story. Last winter, with 20% more snow than the previous winter, a large eastern city reduced the cost of removing each foot of snow that fell by 30%! It did it with *Sterling* "Auger-Action" Rock Salt!

Thanks to streets quickly made *clear and dry,* skidding accidents were fewer. Merchants, motorists, commercial drivers, and pedestrians praised results . . . acclaimed their "snow-free city"!

YOU, TOO, CAN SAVE!

Your own city, county, state, can easily match this snow removal feat. Simply spread Sterling Rock Salt at the start of each storm. It keeps snow and ice from packing or bonding with pavements . . . keeps them soft and mealy for easy plowing . . . makes even heavy falls easy to remove.

Sterling's auger-action also bores through compacted snow and ice, forming brine which spreads out, loosening the bond with pavement. Traffic shatters the mat, and the remaining brine prevents further icing. You're bound to save time, labor, money . . . receive wholehearted public endorsement.



Get your free copy at once of **"Why, When and How to Apply Sterling 'Auger-Action' Rock Salt."** Just fill out and mail this coupon.

INTERNATIONAL SALT COMPANY, INC.
Dept. AC-12, Scranton, Pa.
Kindly send me today a free copy of "Why, When and How to Apply Sterling 'Auger-Action' Rock Salt."

*Name*_____
*Title*_____
*Street*_____
*City*_____ *State*_____

3500 gallon capacity Heil streamlined flusher tank

HEIL STREET FLUSHERS help you establish a record for Cleaner Streets

Heil Street Flushers are built by the same experienced organization that has led the field in fabricating transportation tanks for all types of service since 1901.

You can recommend these Street Flushers because they have been carefully engineered and ruggedly built for dependable service and economical operation. The penetrating force of the spray cleans pavements thoroughly, and the effective area can be controlled to widths of 16 to 42 feet by the use of one, two, or three brass flushing nozzles. You save water — you save power. Write for descriptive bulletin TT639. It tells you about the outstanding features of Heil Street Flushers.

Thorough flushing action

800 gallon Heil Street Flusher

1800 gallon Heil Street Flusher

T-139

ARMY NAVY

THE HEIL CO.

GENERAL OFFICES • MILWAUKEE 1, WISCONSIN

Check Your Wants
Use Coupon on Page 19

Sludge Vacuum Filters and Driers

342. Sewage treatment officials will be interested in the dewatering and drying equipment that the General American Transportation Corp., 10 East 49 St., Dept. 830b, New York 17, N. Y., can offer them. There are the Conkey sludge filters for large scale of dewatering of sludge such as the primary, the elutriated-digested, and the Guggenheim Process; for drying both activated and digested sludge, there are the Louisville dryers. Type "L" with patented fire conduits eliminates scorching or burning, and produces a uniformly high quality maximum yield of dried product for fertilizer.

Modern Alloys for Valves and Stems

343. Water works officials will find that valves and stems made of the modern alloys offer many advantages. Bridgeport Brass Co., Bridgeport 2, Conn., points out that Duronze III, one of its modern alloys, is a silicon aluminum bronze with a tensile strength of about 90,000 lbs. per square inch in its annealed condition, it is 9% lighter in weight than brass, possesses a low-coefficient of friction, and resists wear and stress corrosion cracking. You can learn more about these copper-base alloys by writing for the "Bridgeport Brass Technical Handbook."

Signs for Efficient Traffic Control

344. Proper marking of streets and special zones will help simplify parking and traffic in your community. Miro-Flex Co., 1824 East Second St., Wichita, Kans., will send you information on the signs it can supply to meet your needs.

Paving Breaker

345. Syntron Co., 430 Lexington, Homer City, Pa., will send you a folder on its self-contained gasoline-hammer paving breakers. These are especially suitable for breaking up concrete, cutting shale, digging clay and shale, and tamping backfill.

New Typewriter Has Added Features

346. If you have been waiting for typewriters for your municipal departments, write Underwood Corp., One Park Ave., New York, 16, N. Y., for information on its new typewriter. They point out that something new called the rhythm touch provides better balanced finger action and results in a rapid response of every key.

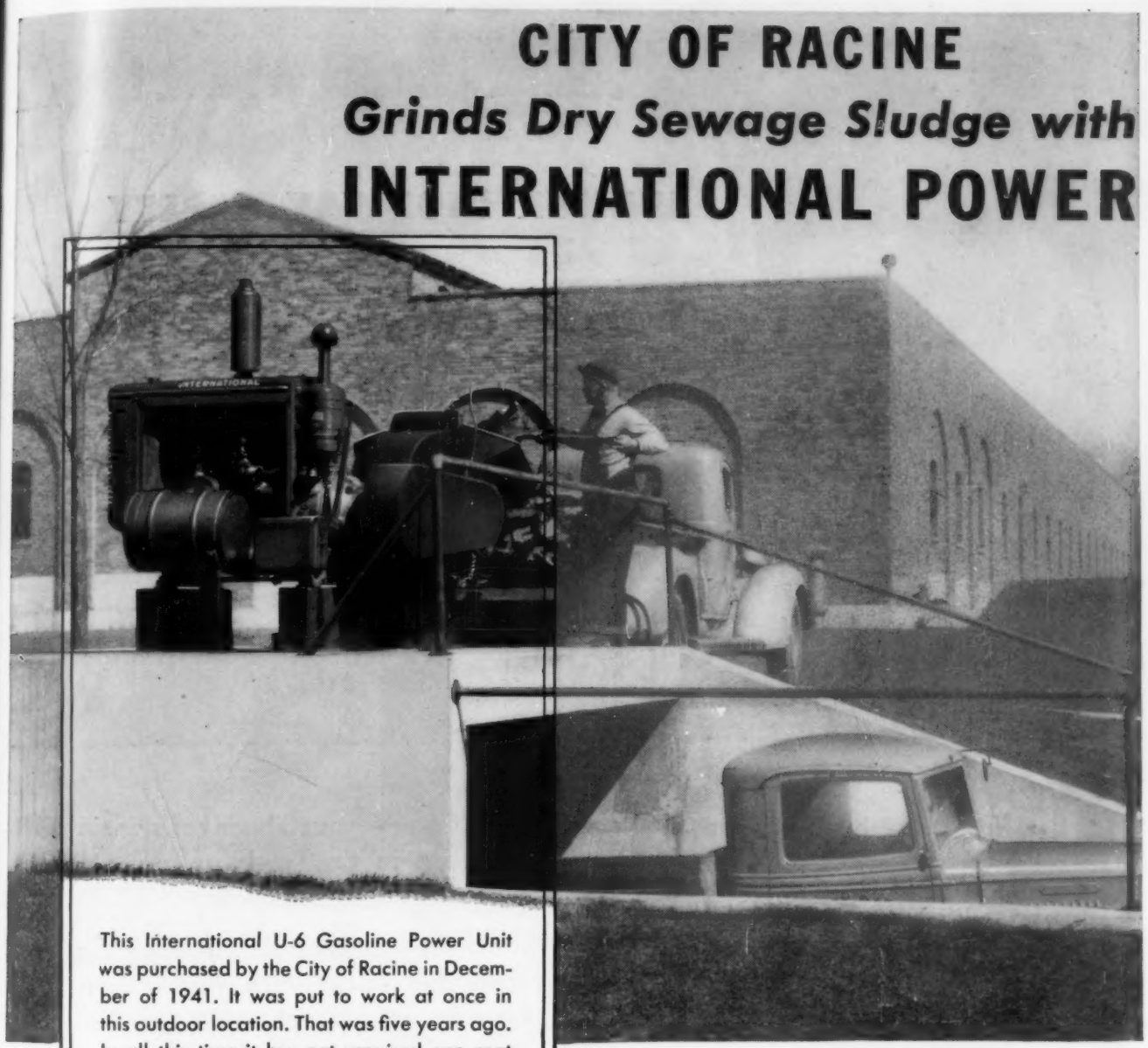
Tractors, Bulldozers, and Scrapers Can Do These Municipal Tasks

347. Allis-Chalmers tractors, bulldozers and scrapers will do many jobs in your community, including clearing off unused land, reclaiming swamp areas by filling them in, beautifying parks, beaches, and playgrounds and repairing and reconstructing streets. Write Allis-Chalmers Tractor Division, Milwaukee 1, Wis.

Extension Rings for Large Water Meter Installations

348. Occasionally large water meter installations are easily made through the use of extension rings. Ford Meter Box Co., Wabash, Ind., will send you a complete catalog of water meter settings and testing equipment, including information on how its extension rings make possible the adaption of 8- and 20-inch meter box covers to 24-, 30-, and 36-inch tile.

CITY OF RACINE
Grinds Dry Sewage Sludge with
INTERNATIONAL POWER



This International U-6 Gasoline Power Unit was purchased by the City of Racine in December of 1941. It was put to work at once in this outdoor location. That was five years ago. In all this time it has not required one cent of repairs or servicing. That's characteristic International operating economy!

DEPENDABLE International Power operates the hammer mill which converts sewage sludge for Racine, Wisconsin, into soil treating material for the farms of the state.

The grinder used previously for this work proved unsatisfactory. When replaced by the hammer mill and International U-6 Power Unit pictured, the ramp was constructed so that the pulverized sludge could drop directly into trucks and thus eliminate troublesome blowers and screens. As a result, the sludge can be ground at a rate of 4 to 7 tons per hour even with moisture content as high as 55 per cent.

This International Power installation solved what had been a vexing problem. Why not consult the International Industrial Power Distributor near you for assistance in selecting power units, tractors and matched equipment that will solve your power problems in similar applications?

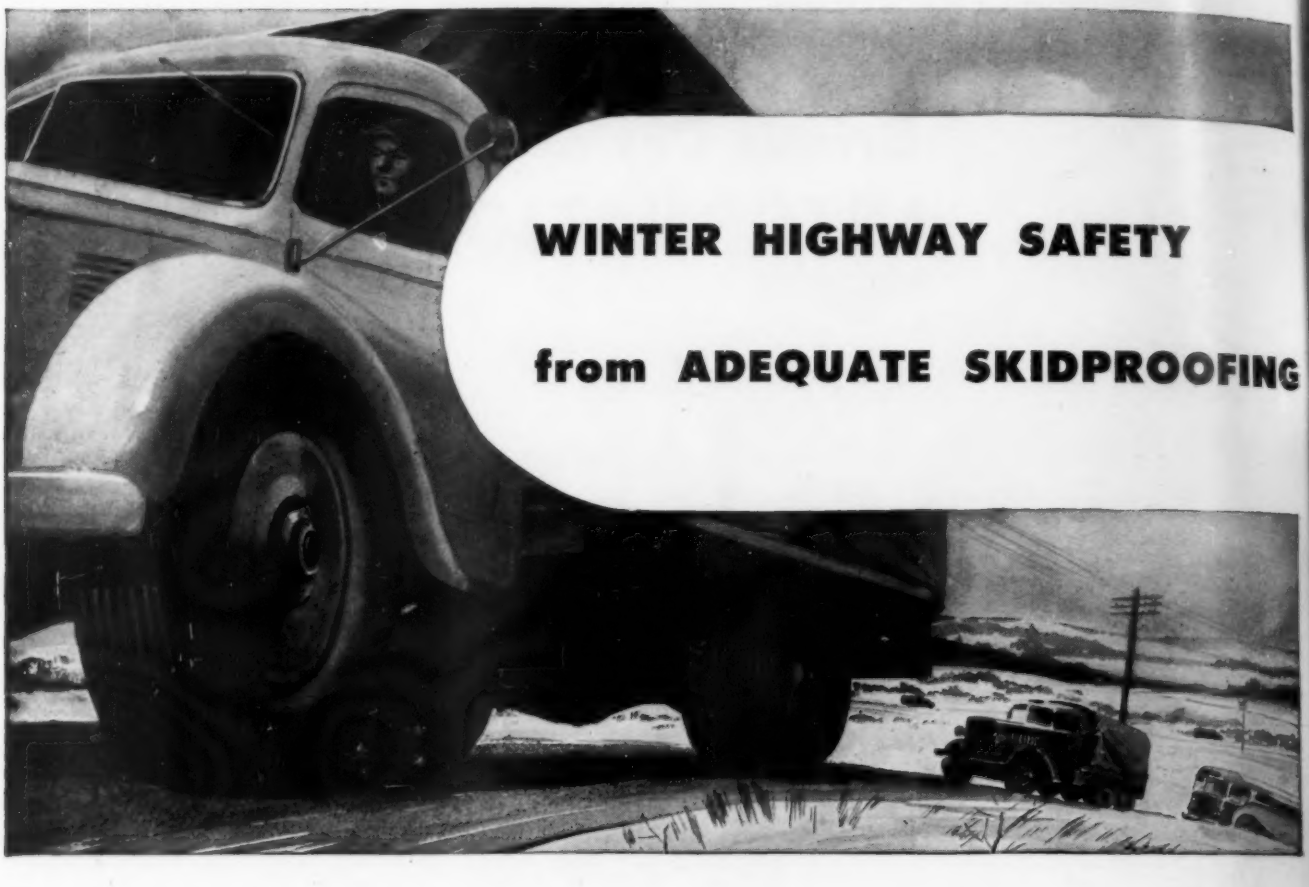
Industrial Power Division

INTERNATIONAL HARVESTER COMPANY

180 North Michigan Avenue — Chicago 1, Illinois

Tune in James Melton on "Harvest of Stars" every Sunday; NBC Network.

INTERNATIONAL INTERNATIONAL HARVESTER **Industrial Power**



The surest and quickest protection against the dangers of icy roads is adequate skidproofing. Backed by time-tested practical experience, skidproofing has proven itself to be the greatest life saver and property saver of them all.

And the best skidproofing—the fastest and most effective skidproofing is provided by abrasives treated with calcium chloride because . . .

You can get them out on the road faster—your abrasives remain unfrozen in the stockpile and are easy to load on the truck.

And when your abrasives hit the road they stick quick—stick tight because calcium chloride supplies the moisture that makes them act fast.

Economical, too, because abrasives treated with calcium chloride go farther and stick longer.

Get our literature on method.

Calcium Chloride Association • LaSalle Bldg., 1028 Connecticut Ave., Washington 6, D. C.

ICE CONTROL WITH
CALCIUM CHLORIDE
FAST • POSITIVE • ECONOMICAL

Gears Icy Roads to Tires

ZONED EQUIPMENT

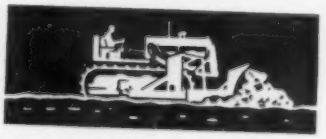
ON A HOUSING JOB

*On this San Antonio, Texas, housing project the earth-moving equipment includes "Caterpillar" D8 and D7 track-type Tractors, three DW10 wheel-type Tractors, scrapers to match, and a No. 12 Motor Grader.

THE county, city or contractor with "100% 'Caterpillar'" equipment has many advantages, including quick and efficient service through a single dealer organization that is always available and the most completely equipped in the industry. Let your "Caterpillar" dealer explain them fully.

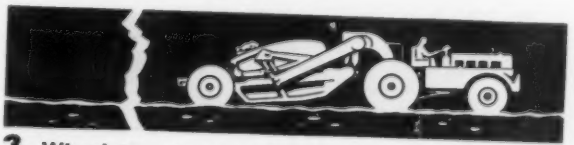
CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

"Caterpillar" builds the units you need to *zone* equipment* *for lowest costs on earth:*



1. Track-type tractors for "push"-distance earthmoving.

2. Track-type tractors for loading and pulling scrapers on medium hauls.



3. Wheel-type tractors for high-speed long hauls.

—plus motor graders for finishing work

CATERPILLAR DIESEL

REG. U.S. PAT. OFF.

ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

—for lowest costs on earth

Saving money—Day

The indisputable fact that cast iron pipe, under normal conditions, offers a century or more of useful life, might lead to a false conclusion.

Namely, that taxpayers do not benefit from the economies of cast iron pipe until it has served for a century or more. Nothing could be farther from the truth.

The fact is that cast iron pipe saves money day by day as well as century by century. And here's why.

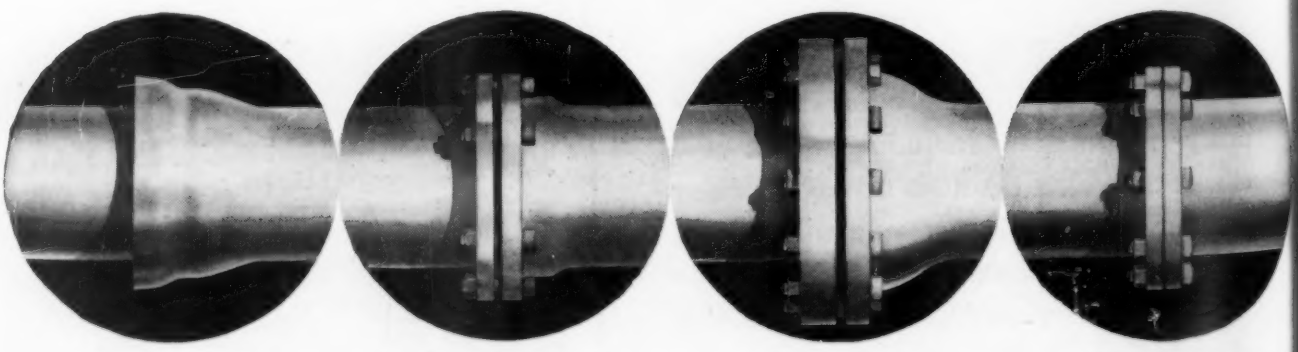
The *maintenance cost* of cast iron water distribution mains is far below that of other pipe materials—proved by reports from nearly 200 water works superintendents.

The cost of cast iron pipe *per service year* (investment cost plus maintenance) is far below that of other pipe materials—proved by the records of 200 of America's largest cities.

Yes, today's taxpayers get the benefit of these economies, through lower cost of maintenance, fewer street openings for repairs, and avoided replacements, otherwise necessary, if shorter-lived pipe were used.

The *known* useful life of cast iron pipe is at least double the *estimated* life of other pipe materials used for water distribution mains. Cast Iron Pipe Research Association, T. F. Wolfe, Research Engineer, Peoples Gas Bldg., Chicago 3.

Because of its all-purpose adaptability for service under ground or under water, cast iron pipe is available with joints for every requirement, as shown below.



Bell-and-Spigot Joint—the time-tried and standard for water and sewerage service.

Mechanical Joint—now standardized with interchangeable parts.

Flexible Joint—for river crossings and other sub-aqueous installations.

Flanged Joint—for water steam, oil or gas lines, generally used above ground.

CAST IRON PIPE

by Day—Century by Century!

Serves for Centuries

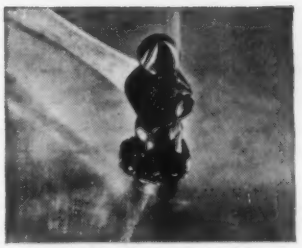
Even those sparkling brooks that feed the water supply
of smaller cities aren't as pure as they look.
They drain stagnant marshes, flow past contaminating barnyards.
Sparkling brooks aren't necessarily pure water.
And if water isn't **pure**, it isn't **safe.**
Germ-laden water that has been treated with SOLVAY
Liquid Chlorine is safe every second of every day.
Municipal engineers rely on this chlorine
bactericide to make drinking water **safe.**
Write Solvay for details of "washing" water to
make it safe with SOLVAY Liquid Chlorine.

SOLVAY
TRADE MARK REG U. S. PAT. OFF.
LIQUID CHLORINE

SOLVAY SALES CORPORATION
Alkalies and Chemical Products Manufactured by The Solvay Process Company
40 Rector Street **New York 6, N. Y.**

Lower Maintenance Costs Assured

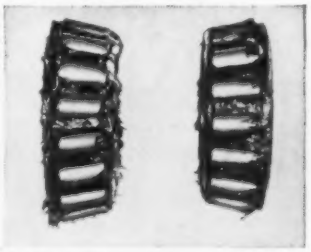
Use a lubricant that protects chassis longer — TEXACO MARFAK. The pictures tell why *Marfak* protection lasts longer. *Marfak* won't splatter under the heaviest blows of a hammer — won't squeeze or jar out of bearings under hammering road shocks, either. It cushions the parts, adds miles to their life.



"Hammer Test" proves Marfak protects parts longer

"Stretch Test" proves Marfak seals out dirt and moisture

And see how *Marfak* s-t-r-e-t-c-h-e-s. Ordinary grease won't do that. But *Marfak* is cohesive. It holds together. That means it seals out dirt and moisture — protects chassis parts for extra thousands of miles.



Marfak Heavy Duty makes wheel bearings last longer

Use a lubricant that adds life to wheel bearings — TEXACO MARFAK HEAVY DUTY. Despite heavy loads and high speeds, *Marfak Heavy Duty* stays in the bearings. It provides fluid lubrication inside, but retains its original consistency at the edges — thus sealing out dirt and moisture, sealing itself in, assuring safer braking. No seasonal change is required.

More than 250 million pounds of Marfak have been used!

For Texaco Products and Lubrication Engineering Service, call the nearest of the more than 2300 Texaco distributing plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants and Fuels

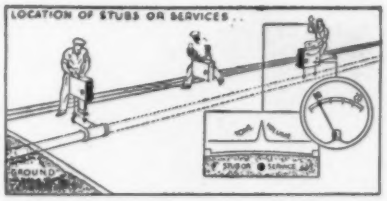
FOR ALL CONTRACTORS' EQUIPMENT

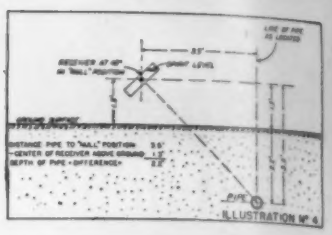
. . . TEXACO STAR THEATRE presents the NEW EDDIE BRACKEN SHOW every Sunday night. Metropolitan Opera broadcasts every Saturday afternoon.

Buried Pipe and Cable Finder

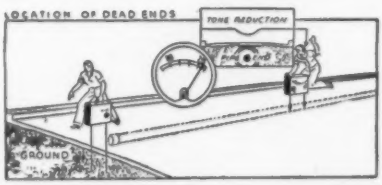
M-SCOPE

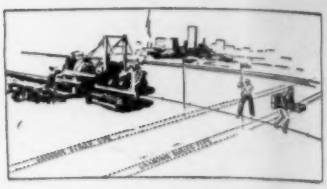
Water and Oil Leak Detector





FREE 16-PAGE BOOKLET UPON REQUEST





The M-SCOPE consists of a specially designed radio Transmitter and Receiver, with conductive wire. In operation, the Transmitter sends out a continuous signal, and when there is no metal between Transmitter and Receiver, a definite volume of sound is heard in the Receiver earphones and the meter (mounted on Receiver) gives a definite reading. If a metal object lies between the two units, sound in earphones is louder and meter reading higher—and the pipe or other metal object is located.

An M-SCOPE Water Leak Detector is so "sensitive" that it can spot the exact trouble point even through concrete; so "speedy" that it can test from 275 to 300 hydrants in a single day; so "accurate" that it usually hits the trouble spot "right on the nose" and "always" within a circle two to three feet in diameter. City Water Superintendents and Army Engineers alike, these days realize the importance of conserving "water, pipe, fuel." The M-SCOPE Water Leak Detector helps you conserve all three.

The M-SCOPE is solving—successfully—the varied problems involved in the development, operation and maintenance of buried pipe and cable systems and is in daily use by representative organizations in such important groups as:

- Government Projects
- Municipalities
- Consulting Engineers
- Airports
- Industrial Plants
- Oil and Pipeline Companies
- Sewerage and Water Plants
- Public Utilities

FISHER RESEARCH LABORATORY, Inc. PALO ALTO, CALIF.

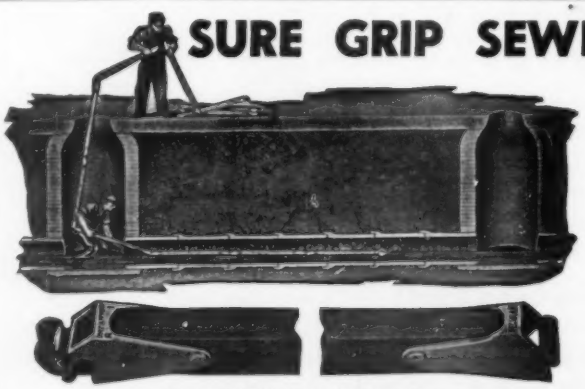
Eastern Distributors of
FISHER M-SCOPE and LEAK DETECTORS

Joseph G. Pollard Co., Inc.

PIPE LINE EQUIPMENT

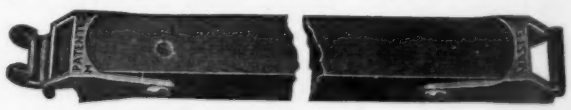
141 ASHLAND PLACE, BROOKLYN 1, NEW YORK

SURE GRIP SEWER RODS and ACCESSORIES



The REGULAR, a light rod,
Fir stock 1¼ x 1¼ inch square.

are joined together with a dual lock forming a rigid chain that will float. They can be coupled or uncoupled upon the street if desired. Made in two sizes.



The MASTER, a heavy duty rod,
Fir stock 1½ x 1½ inch square.

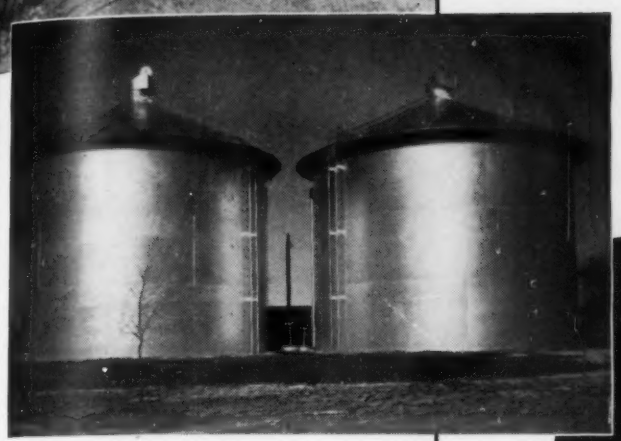
Write for catalog on complete line of sewer cleaning equipment.

EXPANDING SEWER MACHINE CO.
NAPPANEE, IND.

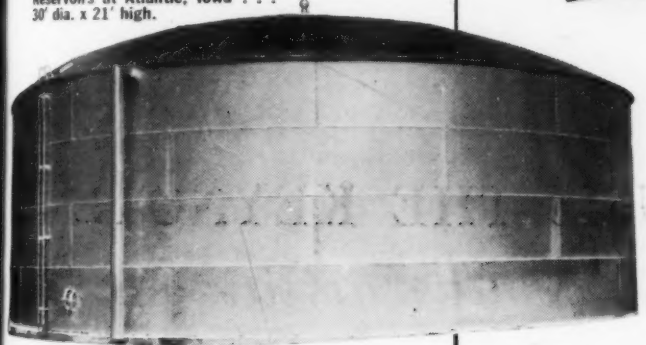
BUY all the Bonds you can . . . KEEP all the Bonds you buy
PROTECT YOUR FUTURE — Buy your EXTRA Bonds now!

WHERE NATURAL ELEVATIONS ARE AVAILABLE . . .

PITTSBURGH-DES MOINES Steel RESERVOIRS



Two 100,000-gallon capacity P-DM Reservoirs at Atlantic, Iowa . . . 30' dia. x 21' high.

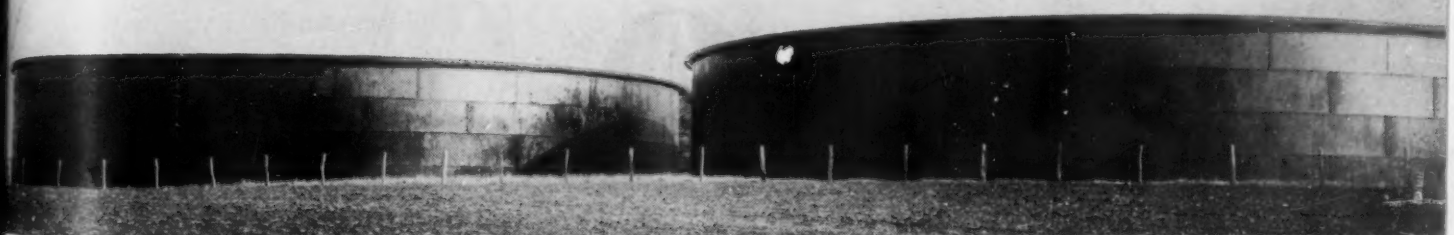


Above—1,000,000-gallon P-DM Reservoir at Bottineau, N. D., 84' dia. x 24' high.

Below—two 3,000,000-gallon P-DM Reservoirs at Berryville, Va., . . . 144' dia. x 25' high.

ASSURE MAXIMUM ECONOMY IN BETTER WATER SERVICE

The permanence of steel, its strength, lower cost and ease of erection, apply to particular advantage in the reservoir storage of water. Pittsburgh-Des Moines Steel Reservoirs are impervious to the effects of climate, seasonal changes and weather—cannot crack, spall or deteriorate. With simple maintenance and periodic painting they are good for a lifetime—a truly sound investment! *Let us consult on your needs.*



PITTSBURGH · DES MOINES STEEL CO.

PITTSBURGH, PA., 3412 NEVILLE ISLAND—DES MOINES, IOWA, 913 TUTTLE STREET

NEW YORK, ROOM 915, 270 BROADWAY · CHICAGO, 1216 FIRST NATIONAL BANK BUILDING

DALLAS, 1217 PRAETORIAN BUILDING · SAN FRANCISCO, 619 RIALTO BUILDING

SEATTLE, 520 FIRST AVENUE, SOUTH

NEW CONSTRUCTION IS THE KEYNOTE
of Many Needed Railroad Facilities

The empire building days of American Railroads are not over. They have really just begun.

In spite of the advancement in other forms of transportation since the pioneer days of railroading—the country's 227,000 miles of "steel highways of commerce" remain the mainstay of ever increasing traffic demands.

Railroad construction running into hundreds of millions of dollars, will be required in the next decade—for terminal facilities, repair shops, signal systems—also for reducing grades and curves necessary for faster speeds and heavier loads.

The A. G. C. Emblem identifies those construction firms with both the skill and equipment to build the railroad facilities needed to keep pace with American industrial progress.

THE ASSOCIATED GENERAL CONTRACTORS · OF AMERICA · A G C REG. U.S. PAT. OFF. SKILL INTEGRITY RESPONSIBILITY

This advertisement is No. 11 of this series

THE ASSOCIATED GENERAL CONTRACTORS of AMERICA, INC.

More Than Ninety-Eight Branches and Chapters Throughout America
National Headquarters — Munsey Building, Washington 4, D. C.

SKILL, INTEGRITY AND RESPONSIBILITY IN CONSTRUCTION OF BUILDINGS, HIGHWAYS, RAILROADS, AIRPORTS AND PUBLIC WORKS

APPROVED

"for safety, practicability and efficiency in general service"

by the U.S. BUREAU OF MINES

PERMISSIBLE
THREE-QUARTER HOUR
SELF-CONTAINED OXYGEN-GENERATING
BREATHING APPARATUS
APPROVAL NO. 1307
Issued for safety, practicability, and efficiency in general service to the
MINE SAFETY APPLIANCES COMPANY
PITTSBURGH, PENNSYLVANIA, U. S. A.
CAUTION
1. Approved only for respiratory protection in oxygen-defici
atmospheres, or in vapors or gases which do not poison by
absorption. (Hydrocyanic acid gas is absorbed through the
2. Not approved for successive wearing periods or prol
use in highly concentrated petroleum vapors.
3. Approved only when assembled with Bureau of
approval No. 1307 canister and Bureau of Mines ap
No. 1307 facepiece.
4. The cautions and instructions printed on the oxy
generating canister must be fully complied with.

M·S·A

Chemox

SELF-GENERATING

OXYGEN BREATHING APPARATUS

Now, approval of CHEMOX by the U.S. Bureau of Mines—official government testing agency for respiratory protective equipment—joins the mass user-approval of industry, fire departments and public services from coast-to-coast!

CHEMOX is the *only* self-generating oxygen breathing apparatus. CHEMOX gives *complete* respiratory protection in atmospheres containing toxic gases, oxygen deficiency, or both—for forty-five minutes at hard work. CHEMOX weighs only 13½ lbs. complete with replaceable canister—is simple to use and maintain! • *Write for new descriptive Bulletin BM-14.*

MINE SAFETY APPLIANCES COMPANY

Braddock, Thomas and Meade Streets • Pittsburgh 8, Pa.

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In Canada: MINE SAFETY APPLIANCES COMPANY OF CANADA, LTD., TORONTO
MONTREAL • VANCOUVER • CALGARY • WINNIPEG • NEW GLASGOW, N. S.

Spring-Like
CRYSTAL CLEAR WATER

RIGHT AT THE SPIGOT

OZONATION

Ozonation is a super-oxidizing process to get rid of obnoxious tastes, colors and odors, particularly those of phenolic and decaying vegetation origin.

Our new Ozone Process for large volume water purification is economical, dependable and practical.

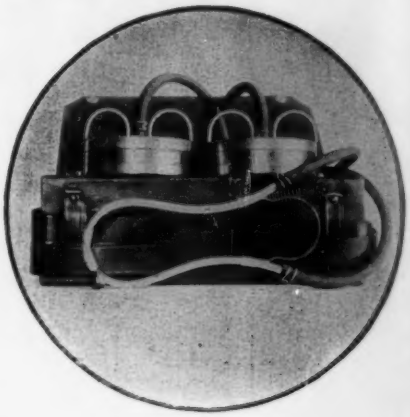
It is backed by years of development and research by one of America's leading engineering organizations.

Bring yourself up to date by sending for our new Bulletin #105—"Ozone in Water Treatment."

OZONE PROCESSES
INCORPORATED
1500 WALNUT ST. PHILADELPHIA 2

A wholly owned subsidiary of Walsbach Engineering and Management Corporation

A "Bull's Eye" every time



A/H LEAK LOCATOR

When hunting leaks, you need not be an expert marksman if you use the A/H Leak Locator. Just place it in contact with the earth, put on the ear-phones, and the A/H Locator will lead you to that underground leak in a jiffy. No hit-and-miss excavating, no unnecessary resurfacing of the street. Price complete with carrying case and strap: $75.00.

pipe locators	dipping needles	pipe phones
$100.00	$17.50	$3.70

Write for circular AC-12

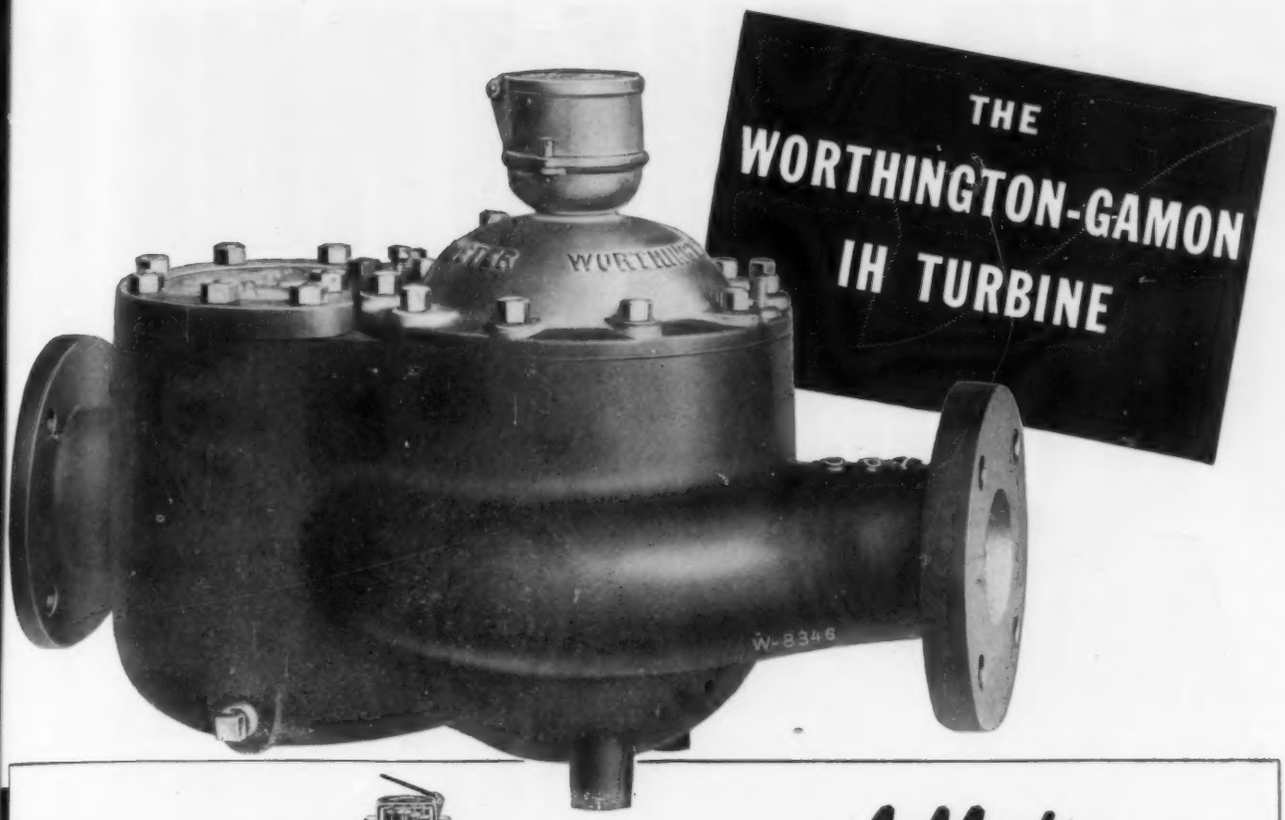
ALLEN - HOWE ELECTRONICS CORP.
150 MAIN ST. PEABODY, MASS.

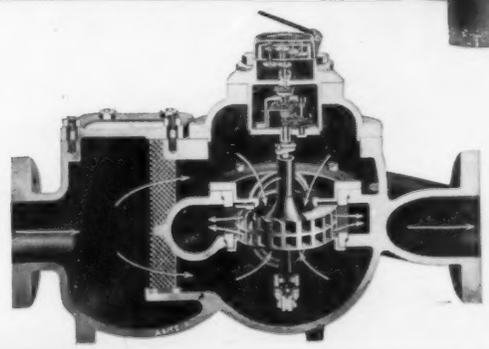
ETNYRE
Street Flushers
"THE MACHINE OF A DOZEN USES"

USED WITH SNOW PLOW IN WINTER

Special attachment in front of radiator grille adapts Etnyre Street Flushers to winter snow removal . . . In summer knife-edged, high-pressure streams of water clean streets up to 42 feet wide in one trip, even under parked cars. Flushing, snow removal, cleaning clogged sewers, spraying trees, pumping out basements, etc. keep an Etnyre busy every month of the year. See your Etnyre dealer or write us today!

E. D. ETNYRE & CO., Oregon, Illinois





. . . A Meter Worth Looking Into!

The Model IH Turbine . . . Current or Velocity Type . . . Capacities up to 2800 gpm . . . Sizes, 2" to 8"

If your cold-water metering involves large flows, be sure to look into the advanced design of the Model IH Turbine–one of Worthington-Gamon's famous Meters.

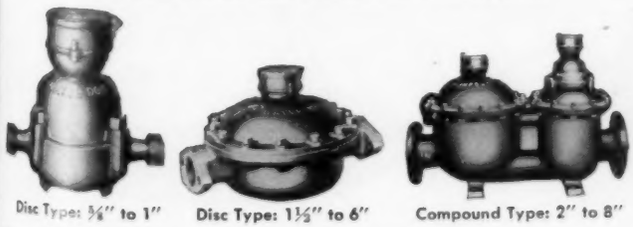
Incoming water flows to each side of a double wheel, carrying two sets of vanes. This hard rubber wheel has a phosphor bronze, rubber-pivoted shaft, turning on ball bearings. A strainer box, integral with the meter casing, is reached through a separate cover, without disturbing the measuring mechanism. The train is oil enclosed.

Hydraulic balance — axial and radial — assures continued accuracy over a wide range of flows. And the sturdy construction of the Model IH Turbine, built to specifications of American Water Works association, means years of low-cost, trouble-free service.

"WATCH DOG" WATER METERS

"Watch Dog" Models . . . made in standard capacities from 20 gpm up; frost-proof and split case models in standard household sizes. All meters of Worthington-Gamon manufacture comply with specifications of cold-water meters adopted by American Water Works Association . . . Write for Bulletin.

Made by America's First Meter Manufacturer
Today's First Choice in Thousands of Municipalities



Disc Type: ⅝" to 1" Disc Type: 1½" to 6" Compound Type: 2" to 8"

WORTHINGTON - GAMON METER COMPANY

296 SOUTH STREET, NEWARK 5, NEW JERSEY

R. E. (Bob) COLLINS
1016 Walker Avenue
Houston 2, Texas

FLOYD A. CASSADY
1515 Classen Boulevard
Oklahoma City 6, Okla.

Subsidiary of

WORTHINGTON
PUMP AND MACHINERY CORPORATION

GG-8

FWD...THE TRUCK FOR MANY *JOBS

*CLEARS SNOW

Here is an FWD refuse-disposal truck serving also as a snowplow . . . practical evidence that the FWD is truly the truck for MANY jobs.

Throughout winter, spring, summer and fall, all-season FWD trucks are "earning dividends" for taxpayers of many communities by doing scores of heavy-duty municipal chores better, faster, with greater safety and dependability . . . on new street construction or maintenance, road patrol work, land clearing, grading, street flushing, ice removal, snow clearing, garbage and refuse hauling, and many other heavy-duty jobs.

*HAULS REFUSE

See your nearest FWD Distributor about the truck that does MANY jobs, or write to

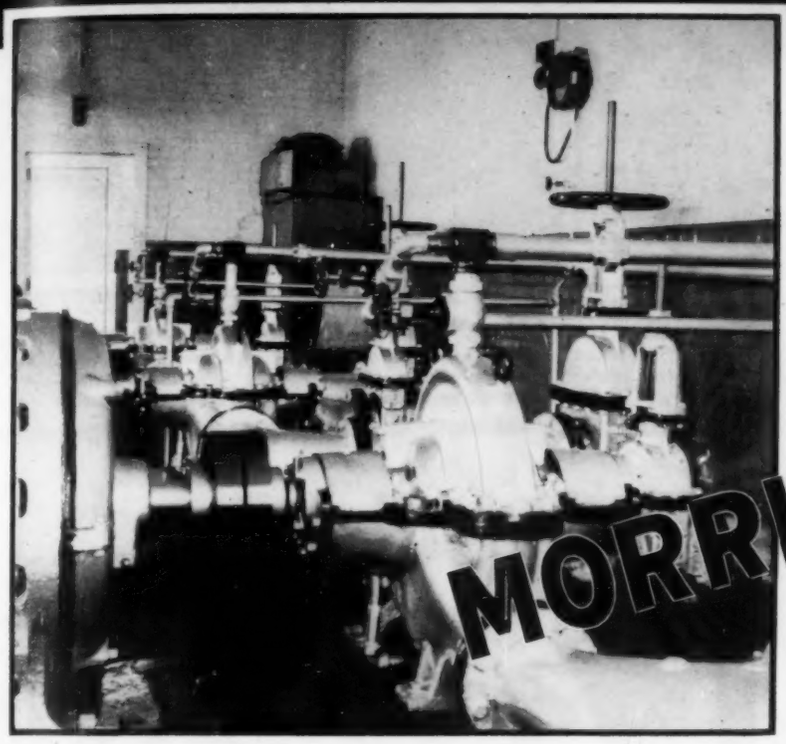
THE FOUR WHEEL DRIVE AUTO COMPANY, Clintonville, Wisconsin

Canadian Factory: KITCHENER, ONTARIO

Modern refuse-disposal bodies mounted on FWD four-wheel-drive trucks are the last word in sanitary, efficient collection of garbage, ashes and other refuse, helping to make many cities better, more healthful, through cleanliness.

America's ***Foremost Heavy-Duty Truck***

In the modernized water supply system at New Bern



TWO reasons made it necessary for New Bern, N. C. to practically rebuild its water supply system—(1) a population which had doubled in a few short years, and (2) contamination by salt intrusion.

In the modernized New Bern Plant, one Morris 700 GPM, and two Morris 1400 GPM pumps—delivering water from storage tanks to the city's distribution system—have conclusively demonstrated their merits.

The 700 GPM pump is a 4″ unit with 5″ suction opening, and operates against a head of 143 feet. It is directly connected to a 40 HP, 1760 RPM motor. The 1400 GPM pumps are capable of pumping against a head of 165 feet, and are connected to 75 HP, 1760 RPM motors. These two units have 6″ discharge openings and 8″ suction openings. All pumps in this station are Morris standard, horizontally split design, bronze fitted, and the arrangement of the piping system is such that the two 1400 GPM pumps can at times be operated in parallel.

● *Municipalities all over the country have learned to specify MORRIS pumps, because of their efficiency, economy, long life, and consistent output. Feel free to consult our engineers about your particular needs. For there is a MORRIS pump for every job, and more than three-quarters of a century experience behind every MORRIS installation.*

MORRIS *Centrifugal Pumps*

MORRIS MACHINE WORKS, Baldwinsville, N. Y.

Offices in Principal Cities

1. INTERNAL CORROSION

Asbestos-cement Transite Pipe cannot cause "red water." And its initial high flow rate is not affected by that most costly form of internal corrosion—tuberculation.

2. MAINTENANCE

In thousands of communities, Transite Pipe —with its advantages of tight joints, corrosion-resist nce and immunity to tuberculation—provides low-cost water transportation.

3. HANDLING COSTS

Transite's light weight means more footage per truckload . . . easier handling all around. Mechanical handling equipment is not necessary except for the larger sizes

7. TRENCHING COSTS

Trenching costs are low with Transite (as indicated above)! No bell holes are required at the joints—width of trenches and disturbance to pavement are kept to a minimum.

Which of these 12 WATER PIPE PROBLEMS are you faced with?

9. SOIL CORROSION

Many a user has found Johns-Manville Transite Pipe the answer to this vexing problem. In numerous installations—many in highly aggressive soils—it has proved stubbornly resistant to corrosion.

10. DELIVERY CAPACITY

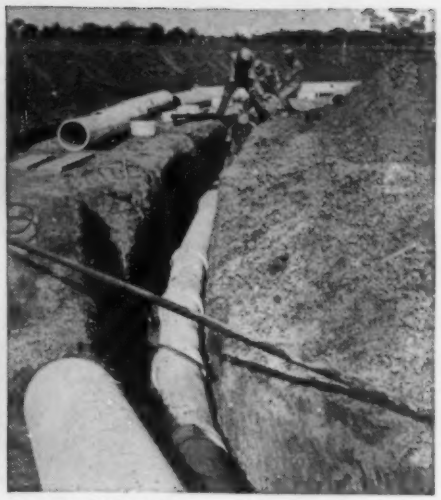
Because Transite is non-metallic, its initial high flow coefficient (C=140) is unaffected by tuberculating waters. Progressive reduction of delivery capacity due to tuberculation is never a problem in a Transite water line!

4. INSTALLATION COSTS

Fast assembly, with the Simplex Coupling, keeps installation costs low, minimizes traffic tie-ups. Transite can be tapped and drilled with standard waterworks equipment.

5. ELECTROLYSIS

Stray electric currents cannot damage this non-metallic pipe. As shown above, it can be laid near street railways and power lines with permanent freedom from electrolysis.



6. CURVES

Sweeps like that shown above present no problem with Transite Pipe. Flexible Simplex Couplings permit deflections up to 5° at each joint without use of fittings.

HERE are twelve problems frequently met in water transmission and distribution lines—twelve problems to which Johns-Manville Transite Pressure Pipe provides a practical answer. Check the list . . . and find out how this modern asbestos-cement pipe can help you get more efficient, more economical water transportation over the years.

For more complete information, write for Brochure TR-11A. Johns-Manville, 22 East 40th Street, New York 16, N. Y.

Johns-Manville
TRANSITE PRESSURE PIPE
An Asbestos Product

8. JOINT LEAKAGE

Forming a tight yet flexible joint, the Simplex Coupling cuts down costly underground leakage . . . safeguards against washing away of supporting soil and undermining of the pipe.

11. SOIL STRESSES

Three factors effectively guard against soil stresses in a Transite water line installation—the high, uniform strength of the pipe itself, its great resistance to corrosion, and the tight, flexible Simplex Couplings.

12. VIBRATION

Transite's flexible joints effectively absorb the vibration of heavy traffic—an especially important consideration wherever pipe is laid under busy streets and highways, or in the vicinity of railway and streetcar tracks.

When worn out, corroded, rustable service pipe is replaced by STREAMLINE Copper Pipe, the operation will not have to be repeated for many, many generations to come —if ever.

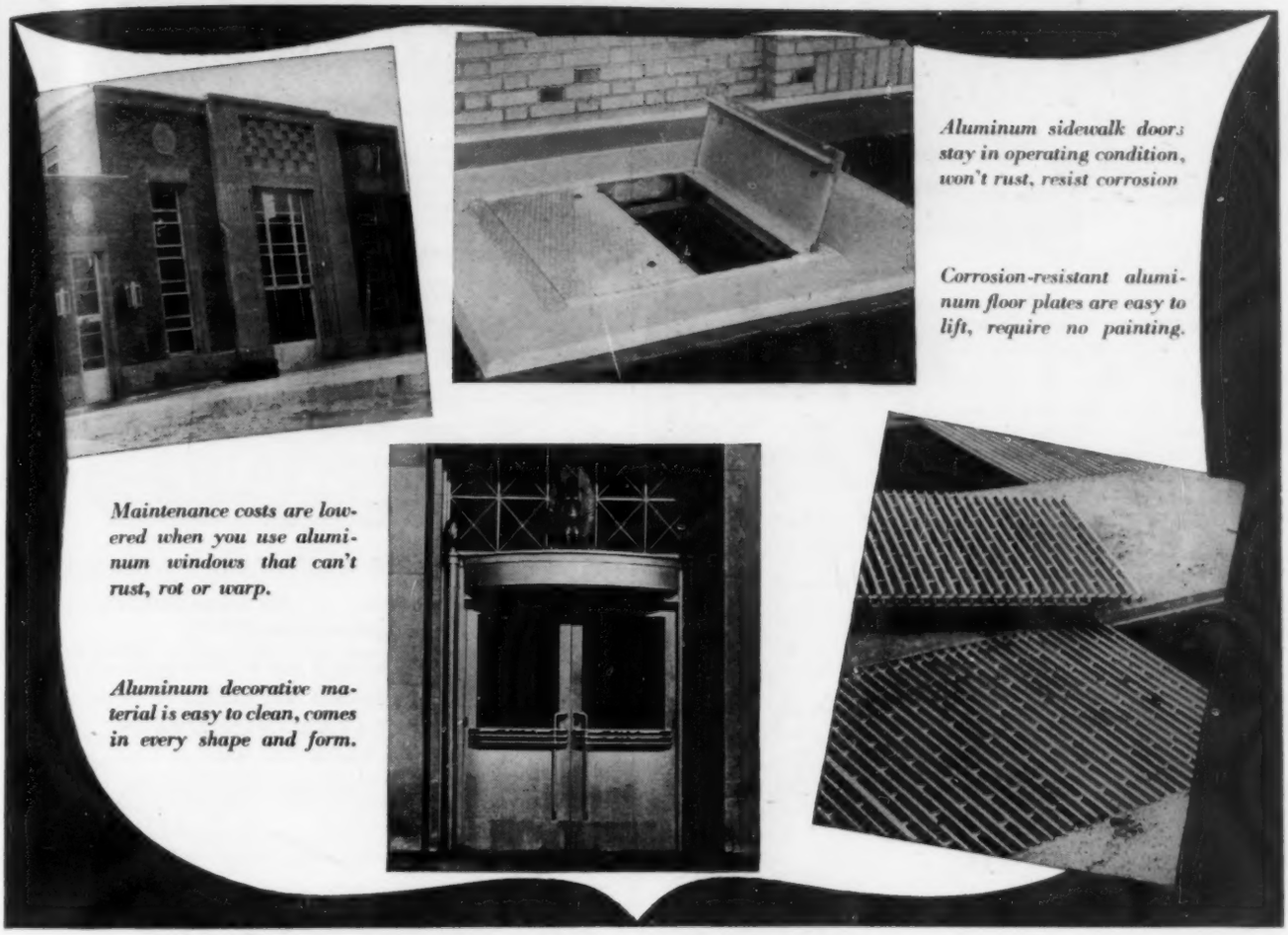
Rustable piping, which has been in service for a number of years, may outwardly still appear to be in fair condition, but it is almost a certainty that the walls of the pipe, in many places, have been so reduced by corrosion, that it is only a matter of time until failure occurs. More than that, the internal capacity of the pipe has, in the great majority of cases, been greatly reduced by the accumulation of slime and corrosion.

An installation of STREAMLINE Copper Pipe and Fittings insures a lifetime, trouble-free piping system for water service work or for plumbing and heating in the plant buildings, that with the possible exception of extremely abnormal water conditions, need never again be replaced. Constant vibration, resettlement of fill, etc., has no effect upon it.

STREAMLINE Fittings and Copper Pipe (Type K) are the ideal materials for water works use; for many applications in filtration plants; in aeration lines and in heating coils using the sludge digestion system in sewage disposal plants...and Type M Copper Pipe for the majority of plumbing and heating purposes in municipal buildings or water works plant.

STREAMLINE Copper Service Pipe, we believe, will soon be available for water works use. Plan to use it in your postwar replacements or for new service work.

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN



Aluminum sidewalk doors stay in operating condition, won't rust, resist corrosion

Corrosion-resistant aluminum floor plates are easy to lift, require no painting.

Maintenance costs are lowered when you use aluminum windows that can't rust, rot or warp.

Aluminum decorative material is easy to clean, comes in every shape and form.

TAKE YOUR CHOICE OF 212 WAYS TO USE

Alcoa Aluminum

The whole conception of aluminum as a building material has changed. Its use no longer is limited to a few selected applications. Its economy and advantages have extended its use to more than 212 places in building construction. Some of these are familiar—some are not so familiar. Shown here are but four applications which have found wide use in sewage disposal plants. Check with us on the many uses you can include in your future plans. ALUMINUM COMPANY OF AMERICA, 2172 Gulf Building, Pittsburgh 19, Pennsylvania. Sales offices in principal cities.

THE MOST VERSATILE OF ALL BUILDING MATERIALS

ALCOA FIRST IN **ALUMINUM**

ALCOA ALUMINUM

IN EVERY COMMERCIAL FORM

DEPENDABLE WATER STORAGE TANKS

An elevated water tank is a lifetime investment, on which the health and safety of the community it serves largely depends.

That's why scores of American cities have entrusted the design, fabrication and erection of their elevated tanks to this company—which has had more than 75 years' experience in this type of construction.

Capacities 5,000 to 2,000,000 gallons, in all types of design. Special architectural treatment to suit local conditions. We invite your inquiries. State capacity, height to bottom, and location.

Tanks—Towers
Pressure Vessels
Starch Kettles
Kiers—Vats
Digesters
Boilers—Flumes
Smokestacks
Standpipes
Fabricated Steel Work.

R.D. COLE MFG. CO. ESTABLISHED 1854
Newnan Ga.

LUDLOW WATER WORKS AND SEWERAGE EQUIPMENT
Proved by the Past — Built for the Future

The past records of Ludlow Valve, Gate and Hydrant installations prove conclusively the faithful and efficient service they will give. Ludlow equipment pays generous dividends in constant service, low upkeep, resistance to wear and fewer replacements. Ludlow engineers stand ready to give honest recommendations and accurate estimates to solve your problems.

The LUDLOW VALVE MFG·CO·INC·TROY·N·Y· SINCE 1866

LEADITE

FOR JOINTING CAST-IRON WATER MAINS

Melted and Poured *No Large Bell-holes to Dig*

Saves at Least 75%

Leadite is shipped in powder form, packed in sacks of 100 lbs. net each. Leadite tested and used for over 40 years • Leadite joints improve with age.

Be Sure it is Leadite and accept no imitations

THE LEADITE COMPANY
Girard Trust Co. Bldg., Philadelphia 2, Pa.

No Caulking

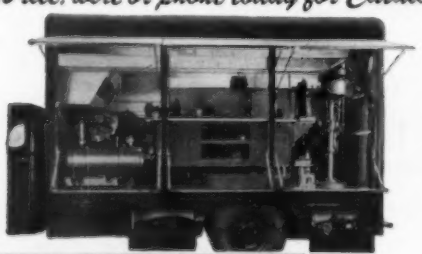
BEFORE YOU BUY *Any* COMPRESSOR...

ONLY 1/3 OF THE TRUCK IS OCCUPIED BY THE AUTO-AIR

...investigate the Davey AUTO-AIR

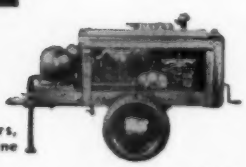
In 60, 105, 160, 210 or 315 cfm capacities, the Auto-Air is suitable for mounting on any standard truck. It is driven from the truck's engine through the Davey Heavy Duty Power Take-Off . . . moves from job to job at truck speeds.

Write, wire or phone today for Catalog E-172



The Davey Mobile Machine Shop includes equipment ordinarily found only in large central service shops.

DAVEY



In addition to Auto-Airs, Davey builds a complete line of trailer units.

There are Davey Dealers in Principal Cities

P&P-100-B

DAVEY COMPRESSOR CO. • KENT, OHIO

ANTHRAFILT
A Filter Medium For All Purposes

ANTHRACITE EQUIPMENT CORP.
Anthracite Institute Bldg., Wilkes-Barre, Pa.

All correspondence regarding sales and engineering should be addressed to:

PALMER FILTER EQUIPMENT COMPANY
822 E. 8th St. Erie, Pa.
Engineers and Sales Agents

STREET SWEEPER
for Sale

to highest bidder. 1933 Elgin Street Sweeper, Model D, in fair condition. Inspection invited.

Write
Village of Winnetka
Illinois

How much does it cost to make a Pump?

It costs a lot of money to make any pump—especially if you want to be a leader, not a follower, and to build a pump so efficient, so dependable that it will be second to none.

You pay the expense of maintaining well-staffed laboratories for product investigation and research—for continuous search for high efficiencies, better applications—and for the thorough testing of your finished product.

You pay the expense of providing production facilities and techniques; you pay for new materials, new methods which, with the cost-reducing benefits of mass production, assure your customers of greatest satisfaction.

Finally, you've the problem of making it easy for your customers to reach you for sales, service and consultation; you must network the country with distribution centers manned by experts.

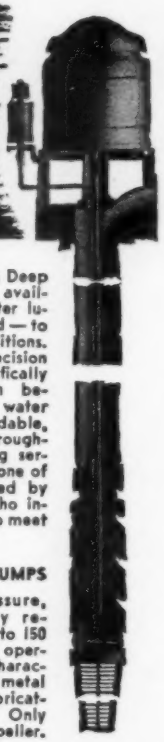
Yes, all this costs a lot of money. No wonder, then, that there are so few pump manufacturers with this valued background. Among them, Fairbanks-Morse is an unquestioned leader in all phases of liquid-moving service . . . For all pumping problems, first see your Fairbanks-Morse dealer or call at the nearest Fairbanks-Morse branch office.

FAIRBANKS-MORSE

A name worth remembering

DIESEL LOCOMOTIVES · DIESEL ENGINES · MAGNETOS · GENERATORS · MOTORS · PUMPS
SCALES · STOKERS · RAILROAD MOTOR CARS and STANDPIPES · FARM EQUIPMENT

Where *Streamlining* Pays Dividends
DEEP WELL TURBINE PUMPS
"by Aurora"



Sizes 4" to 24"

These outstanding Aurora Deep Well Turbine Pumps are available in both oil and water lubricated units as desired — to meet all operating conditions. Their sturdiness and precision manufacture plus scientifically streamlined coordination between impellers and water channels insures dependable, low cost water supply throughout an exceptionally long service life. Their record is one of high merit — as evidenced by the many Aurora users who install additional Auroras to meet expansion requirements.

AURORA CENTRIFUGALS
for Every Pumping Job
HORIZONTAL SPLIT CASE
Single & Two Stage
SIDE SUCTION
VERTICAL
NON CLOG
SUMP
MIXED FLOW
SPECIAL DESIGN
Write for
CONDENSED CATALOG "M"
or
Consult SWEETS

APCO TURBINE-TYPE PUMPS

For high pressure, small capacity requirements (up to 150 g.p.m.). Wide operating range characteristics. No metal to metal contact. Handles non-lubricating liquids without wear. Only one moving part—the Impeller.

DISTRIBUTORS IN PRINCIPAL CITIES

AURORA *Always* PUMPS

AURORA PUMP COMPANY

66 Loucks Street, AURORA, ILLINOIS

100% Self-Contained

SYNTRON

Gasoline Hammer

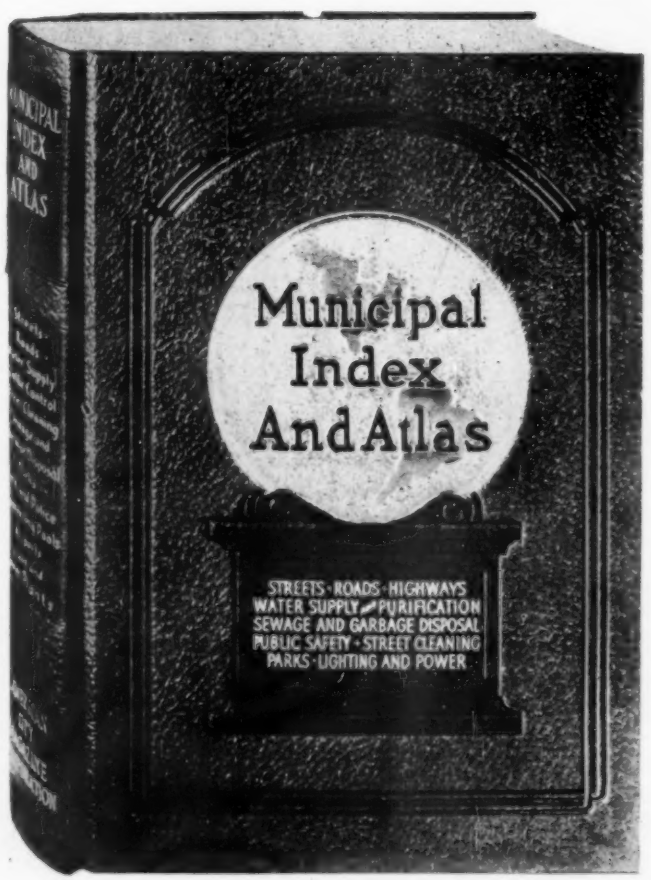
PAVING BREAKERS

BUST Concrete — CUT Asphalt
DIG Clay and Shale
TAMP Backfill

Quickly — Easily — Economically

Write for illustrated folder No. 845

SYNTRON CO.
430 Lexington, Homer City, Pa.


MUNICIPAL INDEX AND ATLAS
Municipal Index And Atlas
STREETS · ROADS · HIGHWAYS
WATER SUPPLY · PURIFICATION
SEWAGE AND GARBAGE DISPOSAL
PUBLIC SAFETY · STREET CLEANING
PARKS · LIGHTING AND POWER

NEW—

750-page annual ATLAS, DIRECTORY & PURCHASING GUIDE for municipal officials now being distributed.

If you want up-to-date information on any type of municipal equipment, consult this new 1946-47 edition.

Published by

American City Publishing Corp.
470 Fourth Avenue, New York 16, N. Y.

What *Streamlined* Snogo Snow Clearance

..means to your city!

1. Snogo removes the snow. It does not pile it at the curb for costly hand labor to load.
2. It does not block drives, crosswalks or street intersections to be dug out by hand.
3. It means more snow per truck and, therefore, fewer loads per area because it packs the snow into the truck with a force impossible by any other method.
4. It is the fastest known method of loading snow. Snogo loads the largest truck in 10 to 20 seconds.
5. It does not block traffic as both Snogo and loading trucks move with traffic.
6. It means clean, open winter streets, normal traffic and service, safer vehicular operation and better winter business for your community.

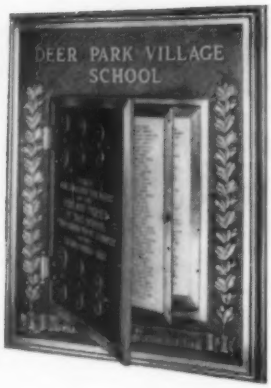
Snogo will cut your snow removal costs.
Let us send you details.

POSITIVELY GUARANTEED
to handle any snow condition that will ever occur on any airport

KLAUER MANUFACTURING COMPANY
DUBUQUE, IOWA

SNOGO

A SNOGO For EVERY BUDGET



NEW "OPENING DOOR" Roll of Honor

Bronze door partly open. Shows swinging sheets which form the pages of this permanent, all bronze book of remembrance.

New and distinctive—Cincinnati Metalcrafts' "Opening Door" Roll of Honor is the most practical and economical answer to the memorial problem. It is all bronze, therefore everlasting. Easily installed in inside or outside walls. Its swinging bronze sheets open like the leaves of a book and can accommodate up to 4400 names.

An important feature of the "Opening Door" Roll of Honor is that extra bronze sheets may be added after memorial is erected. This is an exclusive Cincinnati Metalcrafts' design.

With the heavy bronze door closed every detail is symbolic of the perfect tribute.

GOLD STAR MEMORIAL

In special tribute to those who sacrificed their lives, a Gold Star memorial makes available the rich dignity that only bronze can offer. It is personalized with the name and crest of your organization, as well as the names of those honored. It can include a bronze vase for flowers to be used on special anniversaries. Also offered in a special Church design using the cross of your faith. Another exclusive Cincinnati Metalcrafts' Memorial.

MEMORIALS FOR ALL PURPOSES

Please write, stating your organization, the number of names to be honored and the desired inscription. We will be glad to send you literature and our recommendation for the type of memorial best suited to your needs.

METAL CRAFTS

Every Cincinnati Metalcrafts' tablet, plaque and honor roll is guaranteed to be of highest quality materials and workmanship.

CINCINNATI METALCRAFTS, INC.

Dept. AC, 34th & Robertson Cincinnati 9, Ohio

LEAKAGE THRU DRAIN
can never undermine
A SMITH HYDRANT
WHEN THE MAIN VALVE IS OPEN OR PARTIALLY OPEN . . .
THE DRAIN IS ALWAYS CLOSED

The Smith Fire Hydrant is so designed that the drain is open only when the main valve is completely closed. Water under pressure cannot pass through the drain in the event that the main valve is improperly closed, partially open or opening.

FIRE HYDRANTS · GATE VALVES · CHECK VALVES · INSERTING VALVES · TAPPING SLEEVES AND VALVES · WATER SERVICE BRASS GOODS

THE A. P. SMITH MFG. CO.

EAST ORANGE, NEW JERSEY

FLOOR STANDS · INDICATOR POSTS · TAPPING MACHINES · INSERTING MACHINES · PIPE CUTTING MACHINES · CORPORATION TAPPING MACHINES

Here's one "secret weapon" that needs to be unveiled in every corner of the land . . .

THE ENEMY: Tuberculosis, the dread White Plague which kills more Americans between 15 and 35 than any other disease.

THE WEAPON: The X-ray, surest means of catching TB early, when it can be cured more easily and before it spreads.

Christmas Seal money fights TB in many ways; one of the most important is to buy X-ray units and promote mass examinations. Please, send in your contribution today.

BUY CHRISTMAS SEALS

Because of the importance of the above message, this space has been contributed by **THE AMERICAN CITY**

Original Woodcut by Lynd Ward

It is probably cold comfort to a construction crew, on a winter morning, to realize that the cast iron supply line they are installing will bring needed protection to the safety and health of a community.

Long range planning for adequate water supply logically includes long-lived cast iron mains. Their reliability and low annual cost are proved by century-old pipe, still in service, even though made without benefit of the improved methods by which U. S. Cast Iron Pipe is produced in our modern plants.

U.S.
cast iron
PIPE

U. S. PIPE & FOUNDRY CO.
General Offices: Burlington, N. J.
Plants and Sales Offices throughout the U. S. A.

SIMPLE AND COMPACT

yet Reliably Strong and Tight

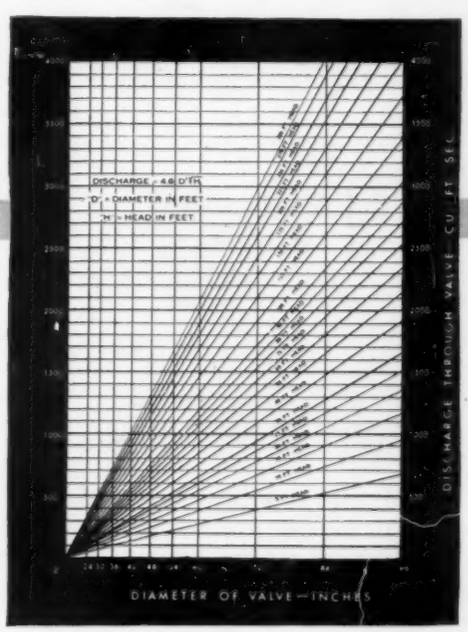
CHAPMAN

DOW DISC-ARM PIVOT VALVE

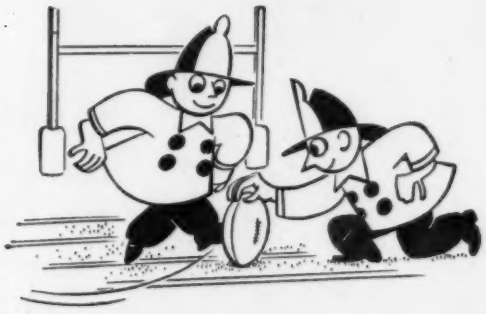
Proved in a quarter of a century's service, Chapman's Dow Disc-Arm Pivot Valve—the improved type of butterfly valve—stands out for its reliable strength and tightness. Note how, by applying the operating force to the proper point, the deflection is taken out of the lower half of the disc.

Send for Bulletin No. 40 which contains complete engineering data and recommendations.

THE CHAPMAN VALVE MANUFACTURING COMPANY
INDIAN ORCHARD, MASSACHUSETTS



Approximate discharge to be anticipated through a pivot valve under the head available at valve inlet.



TEAMMATES...and with Good Reason!

Fire and water departments the world over have a warm feeling for any Mathews Hydrant, and with good reason—it doesn't run out on the team. Weather makes no difference to it—it works in summer, when the going's easy; and it works the same, sure way in winter—which is what fire-fighters like about it, and have liked about it for generations.

All working parts are enclosed in a *removable* barrel, so designed as to be a perfect barrier against rain, snow, and hydrant water. A Mathews is not subjected to strain as the ground freezes, for its tough "Sand-Spun" protection case, free to move up and down, takes the thrust. If ever damaged, a Mathews can be back in service in no time—it's a matter of minutes to unscrew the barrel and replace it; besides, it's all an *above-pavement* job. The Mathews is a marvel of inventiveness; in fact, it is a mechanical triumph.

MATHEWS HYDRANTS

Made by **R. D. WOOD** *Company*

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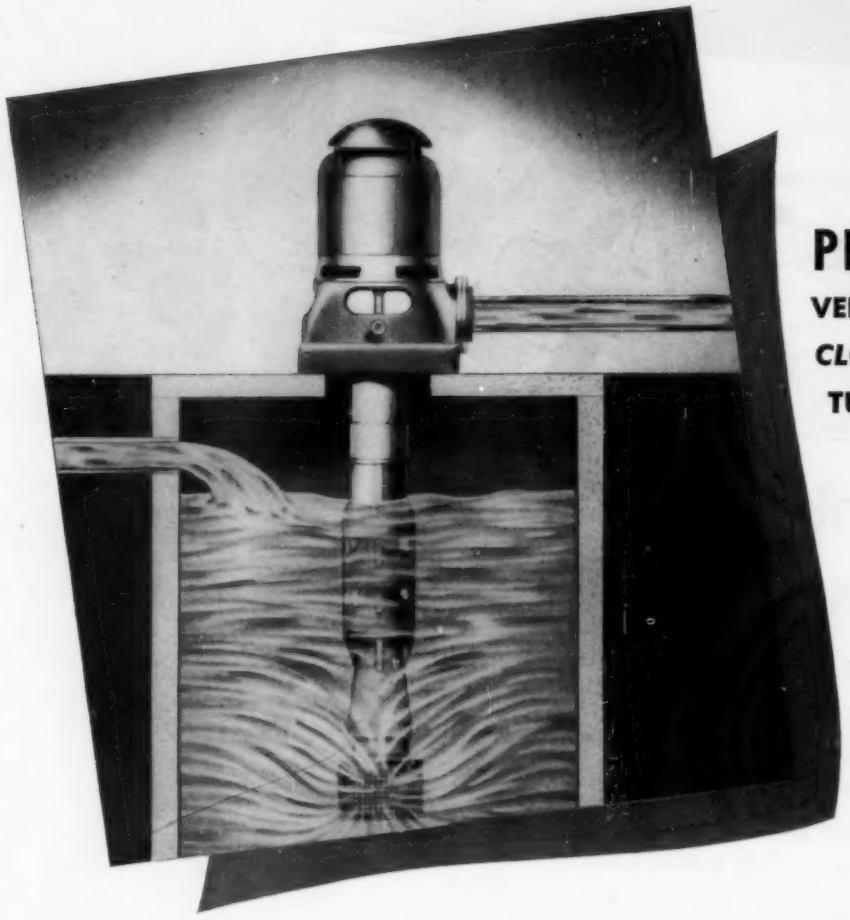

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from Short or Medium Settings

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Peerless Vertical, Close-Coupled Turbine Pumps offer a most efficient method of supplying and moving water from short settings. Ideal for installation over sumps, pits, basins, etc., where turbine pump utility and capacity are required. Capacities: From 15 to 30,000 G.P.M. For medium and high heads • Oil or water lubrication • Choice of Drives.

Request Bulletin B-159, describing the engineering, construction and application of Peerless Vertical Close-Coupled Turbine Pumps.

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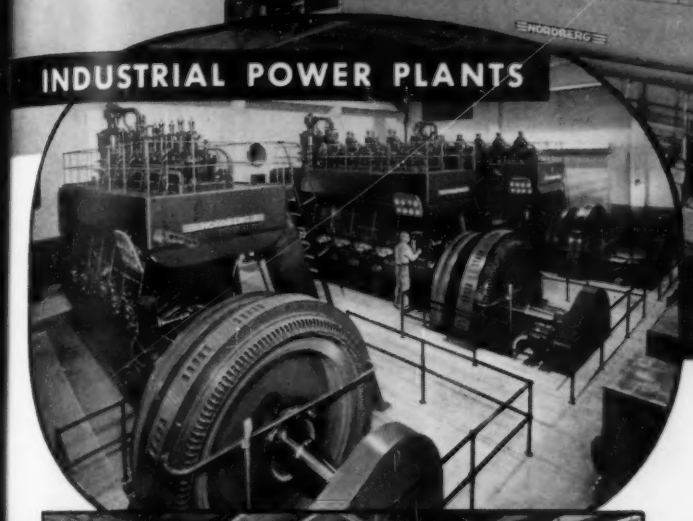

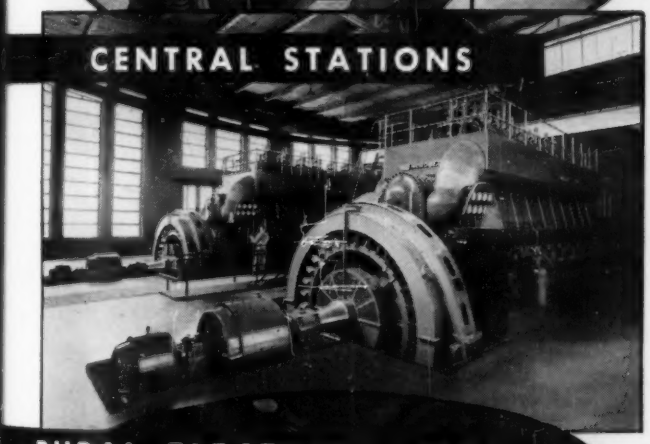

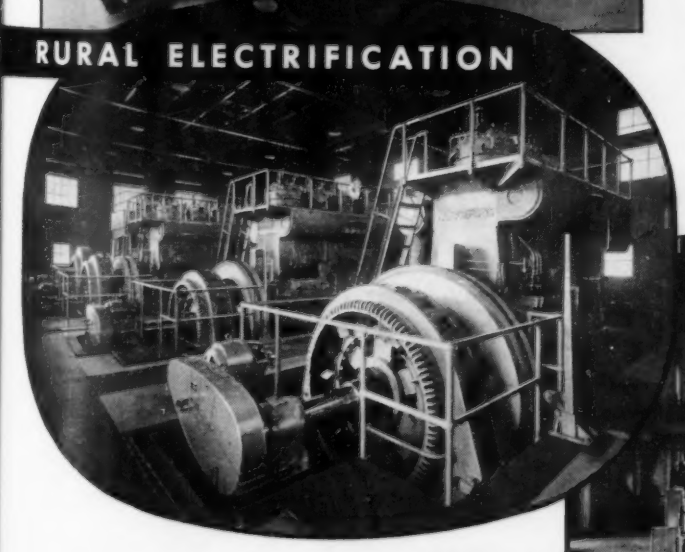

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Low cost power supplied from a dependable source is of prime importance to every power user. Innumerable installations of economical, reliable Nordbergs prove conclusively that these demands are met with Diesel power. Nordbergs are built in two and four-cycle types in a range of sizes to 8500 horsepower in a single unit. When in need of additional power or a more economical unit, investigate the advantages of Nordberg Diesel power.

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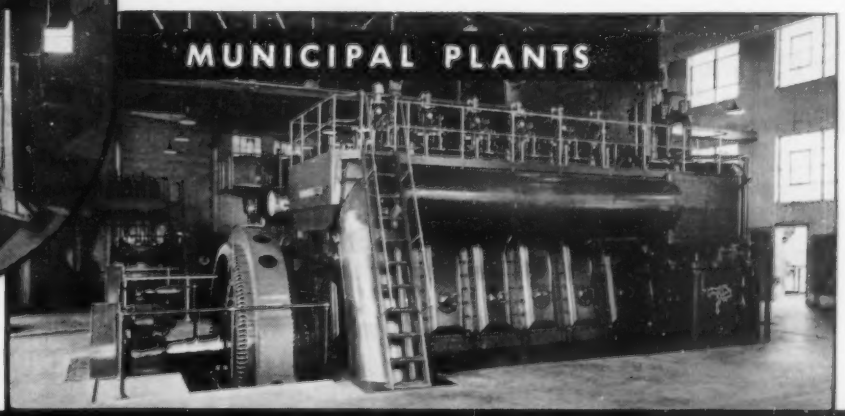

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DIESEL ENGINES

Here are *1050* MEN shoveling snow

. . . That's the Manpower of a *Brōs* Rotary

Every minute the *Bros* Rotary does a snow removal job it equals 1050 men working with shovels. The NEW *Bros* Sno-Flyr puts more snow into the haul-away trucks because it delivers the snow with greater velocity and really packs it in. That's economical snow loading. It's the type of work that enables the *Bros* to pay for itself within a short time.

The forward and vertical action of the exclusive *Bros* feeding rake delivers the snow to dual discharge rotors which have a casting range of 150 feet on airport and highway work. The same power can be utilized with a capped chute for shorter casting distance or loading work. The casting capacity of the 170 h.p. unit is up to 42 tons per minute of fresh-fallen snow while the 275 h.p. unit rates up to 51 tons per minute.

Write for further details. Wm. *Bros* Boiler and Manufacturing Company, Minneapolis 14, Minn.

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MAKE YOUR OWN TEST WHERE CORROSION IS MOST SEVERE

Pick the toughest job a metal must perform—right in *your own* plant, and test Bridgeport's Duronze alongside the material you are now using. You make the test—you determine the result! The corrosion problems of sewage treatment plants are often intensified by industrial wastes, acids, salts and such gases as hydrogen sulphide, carbon dioxide, ammonia and nitrogen. Sewage equipment, pumps, valves, piping, grinders and paddles, working under such conditions, will stand up longer in service when made from corrosion-resisting Duronze alloys.

Duronze III valve stems, for example, have outlasted other materials many times in certain applications. This alloy is ideal for valve parts, thrust screws, pump parts, bushings, etc. It resists wear because of its low coefficient of friction when in moving contact with steel, bronze and most other materials. Also, Duronze III has exceptional resistance to corrosive liquids and fumes. In rod form and as hot forgings, Duronze III has a tensile strength of more than 85,000 lbs. per square inch; as a sand casting approximately 70,000 lbs. per square inch—values higher than those of ordinary silicon bronzes. These properties mean longer service life, reduced maintenance and replacement costs. Tubing, made from Duronze IV has demonstrated its ability to withstand the corrosive action of water polluted by acid wastes and sewage, hot brine solutions, etc. and should have many useful applications in sewage treatment plants.

Investigate Bridgeport's Duronze engineering alloys with a view to setting up any tests you may wish to make concerning their application to your equipment. In the meantime, write for Bridgeport's 80-page Duronze Manual, just revised and containing latest specifications and technical data on five modern engineering alloys.

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There are many good water meters on the market.

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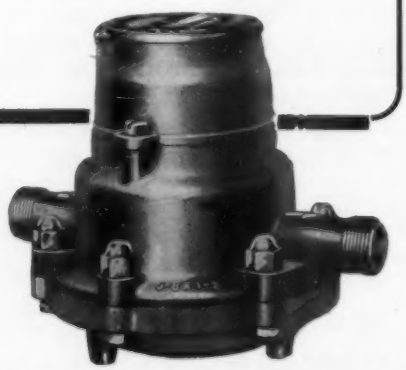
Buffalo-Made meters are the simplest in design, have the fewest moving parts. They have fewer parts to wear out, but when repair time finally arrives, the job takes less time and is less expensive.



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Pipe manufactured in accordance with standard specifications adopted and approved by water works associations and engineers.

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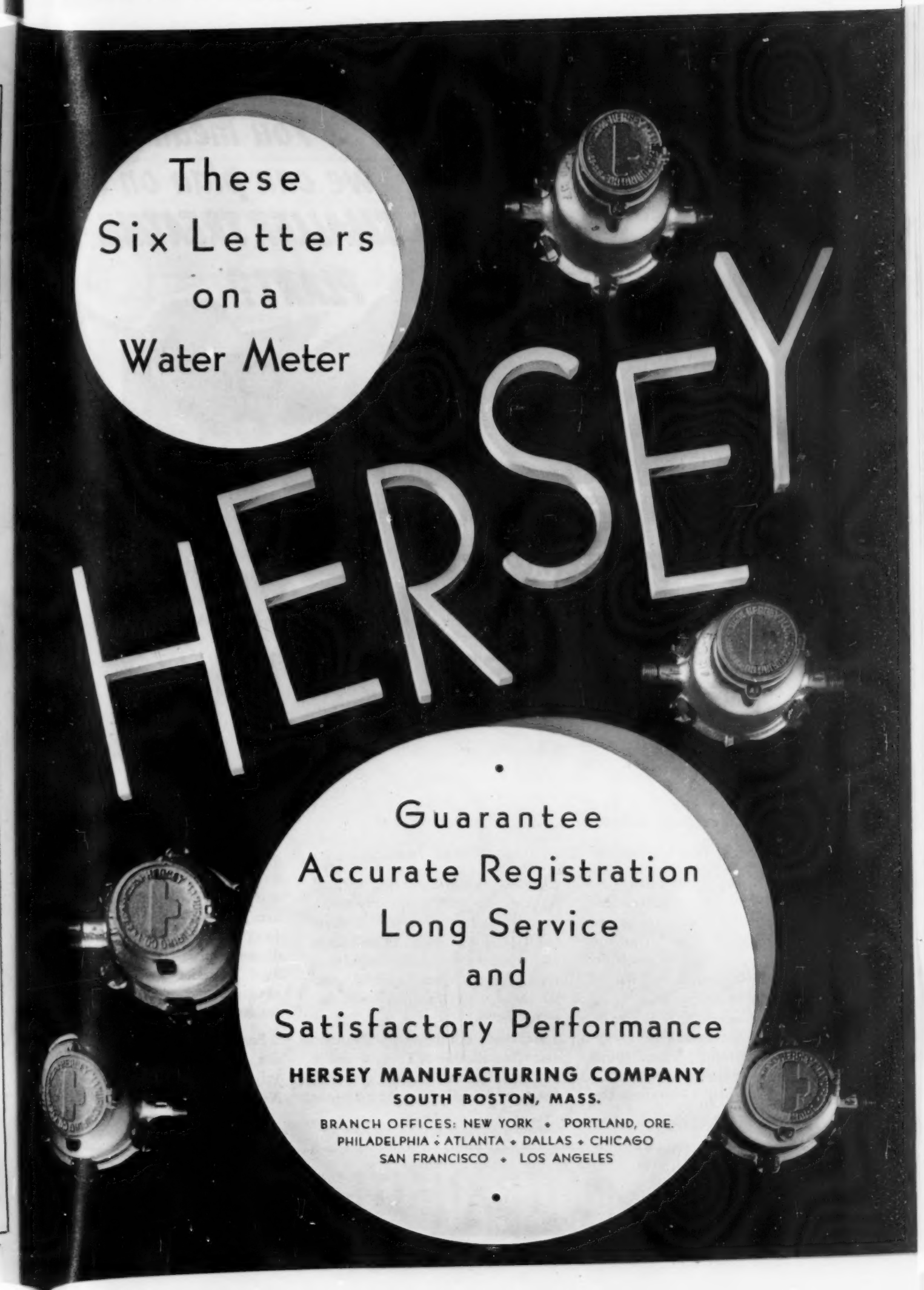
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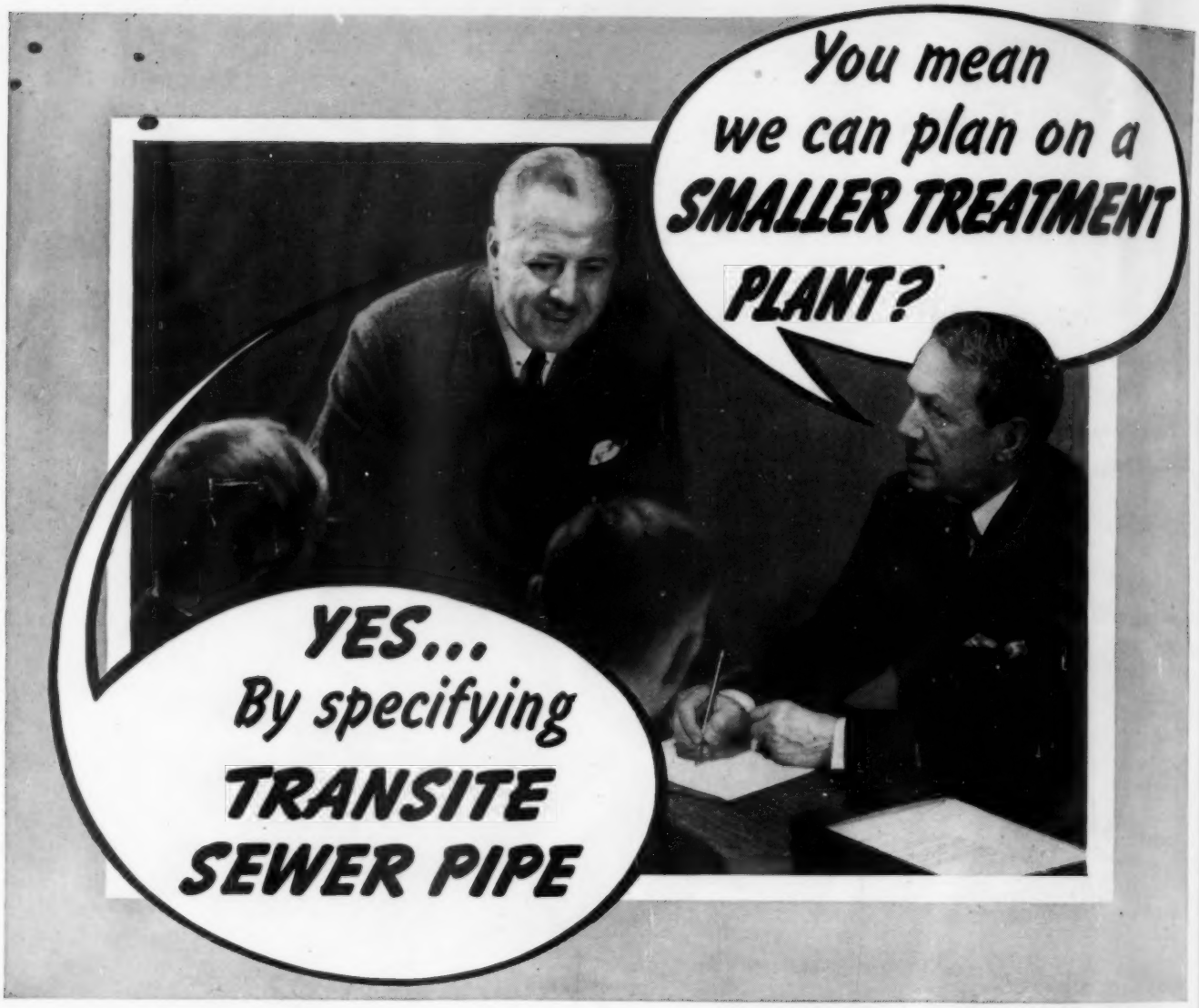

A sewer pipe affect the size of a treatment plant? Yes—when you consider these facts:

Conservative estimates show that more than 25% of the contents of the average sewer line is infiltrated ground water. This means an unnecessarily heavy load on the treatment plant—a larger volume of sewage to be treated.

Transite Sewer Pipe, however, provides the advantage of exceptionally tight joints. These joints stay tight in service—effectively safeguard against costly infiltration. Designers, taking the reduced load into account, can frequently figure on smaller treatment plants, effect substantial economies in buildings and equipment. Equally important, treatment costs are lowered. And plant capacity is conserved for future needs.

But that's not the whole Transite story. Installation of Transite Sewer Pipe is faster and more economical because Transite's long, 13-foot lengths and light weight reduce handling costs. Fewer joints are needed, less time and effort are required for accurate laying to line and grade. Because Transite has an exceptionally high carrying capacity (n=.010), flatter grades—or smaller diameter pipe—may often be used. And Transite's asbestos-cement structure means high corrosion-resistance through the years.

For details on Transite Sewer Pipe, write Johns-Manville, Box 290, New York 16, N. Y.

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a dependable and economical source of

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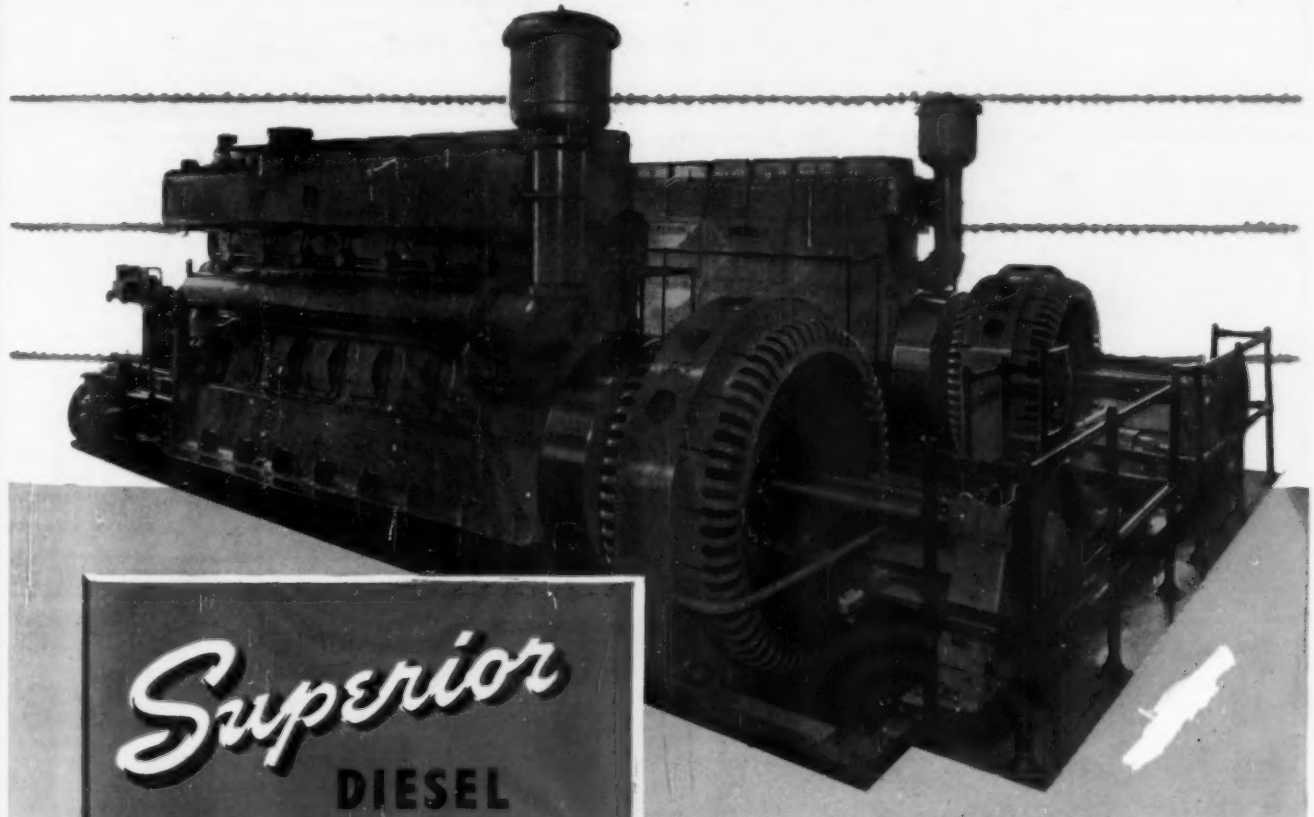

Superior DIESEL

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At the November 5th election in the state of Ohio, 12 precincts in Montgomery County (Dayton) and 15 precincts in Clark County (Springfield) used Automatic Voting Machines for the first time. *The Dayton, Ohio Daily News* of November 10th reported—"A Chamber of Commerce survey on voting machines made during the rush hours of voting Tuesday revealed that:

95% of the voters favored voting machines.
97% of the voters found the voting machine easy to operate.

"The first results from precincts using the voting machines were received unofficially by *The Dayton Daily News* 18 minutes after the polls closed. By 7:25 P. M., only 55 minutes after the polls closed, the last of the 12 precincts had reported its vote. All results were officially deposited at the Board of Elections office before the first of the paper ballot precincts had reported."

If your community is interested in a better and less expensive voting system write

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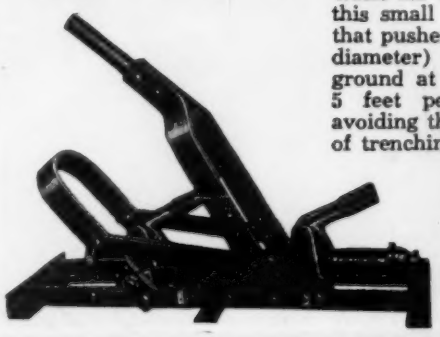
Write for booklet telling of this small inexpensive tool that pushes pipe (up to 15" diameter) through the ground at the rate of 1 to 5 feet per minute, thus avoiding the heavy expense of trenching.



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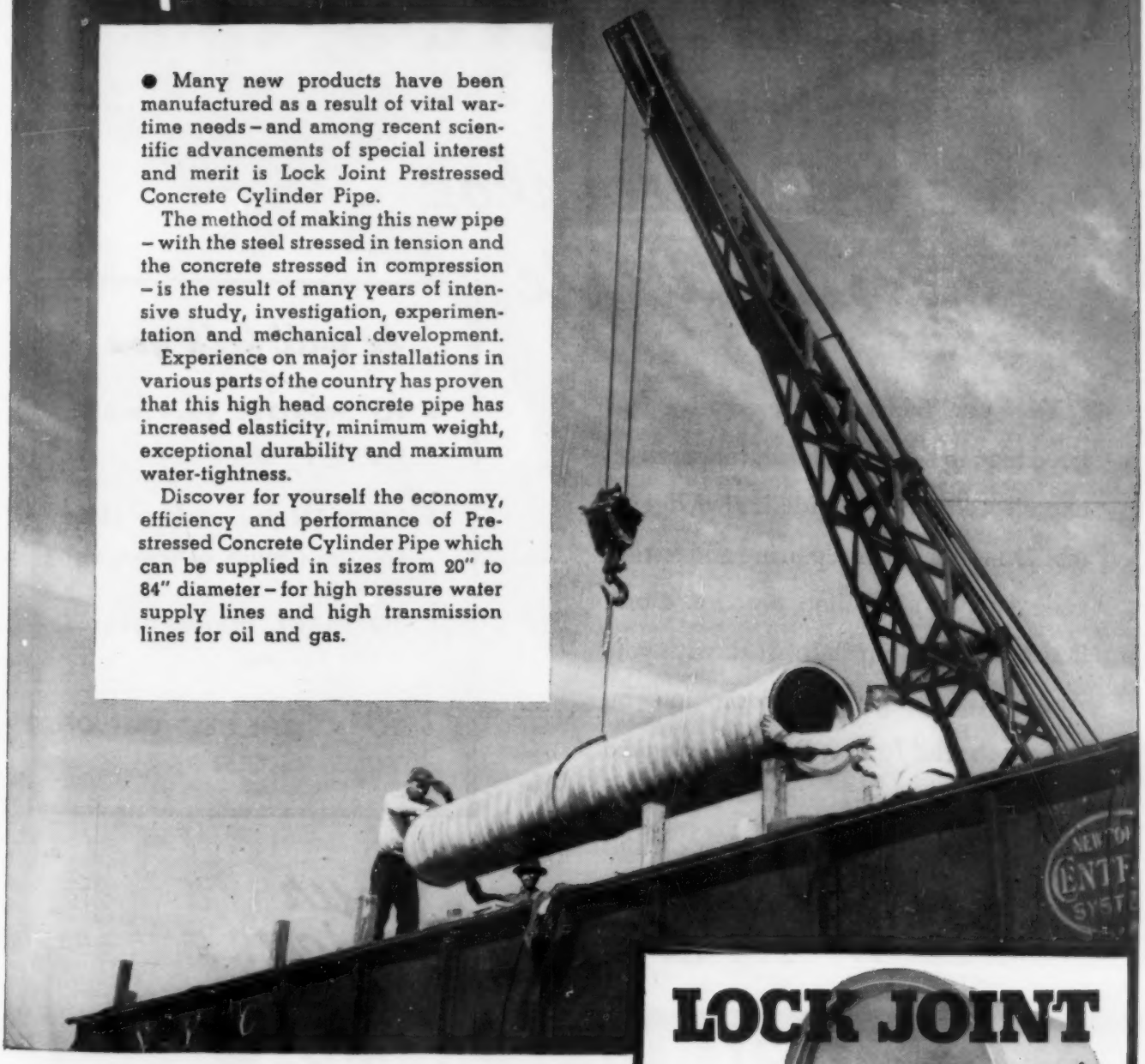
The method of making this new pipe – with the steel stressed in tension and the concrete stressed in compression – is the result of many years of intensive study, investigation, experimentation and mechanical development.

Experience on major installations in various parts of the country has proven that this high head concrete pipe has increased elasticity, minimum weight, exceptional durability and maximum water-tightness.

Discover for yourself the economy, efficiency and performance of Prestressed Concrete Cylinder Pipe which can be supplied in sizes from 20" to 84" diameter – for high pressure water supply lines and high transmission lines for oil and gas.



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Acceptance of U. S. Public Health Service Drinking Water Standards by the American Water Works Association is another step toward the goal of "perfect" water,—toward the complete elimination of water-borne disease—and not least, toward a more palatable water for the consumer. At the same time, however, it means added responsibilities and a new challenge to the waterworks operator.

These standards are legally applicable only to waterworks supplying interstate carriers. For others acceptance is voluntary and intended only as a guide to better treatment practice and better water for the consumer. In every case, however, you'll find that Free Residual Chlorination by the Break-Point Process can go a long way in helping you meet these new standards of water quality—in helping you measure up to the goal ahead.

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SA-206

THE AMERICAN CITY

Volumes 62-63

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